

THE CONTINUATION OF THE SECULAR VARIATIONS OF THE CLIMATE OF NORWAY 1940—50

BY

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1. Introductory Remarks.

Regular observations of the temperature began about the year 1750 at some places all over the world, for instance in Edinburgh, Greenwich, Utrecht, Paris, Berlin, Copenhagen, Stockholm and Trondheim, while the observations in Oslo and Bergen did not start until 1816. Observations in greater extension were not made before 1860—70 when many meteorological institutes were erected.

Since then the meteorologists have made many investigations on the climate and of course also tried to find variations in the climatic conditions. But up to 1930 most meteorologists were of the opinion that there were no essential changes to be found and they doubted the reality of the periods that had been postulated. At that time there was, however, a remarkable rise in the temperature in great parts of the world and the attention of the meteorologists was raised again. In Norway the rise in temperature was especially remarkable and we began to examine the phenomenon.

Our plan was to constate an eventual secular variation numerically by means of the observations made of the temperature and the humidity of the air, the precipitation, snowdepth, atmospheric pressure and wind. As the variations from one year to another are very great compared with the eventual longperiodic changes it was necessary to smooth out the observational data over long periods in order to find clearly the secular variations. We found it advantageous to work with means for 30 years. We therefore computed mean values

for, for instance, the period 1861—90, 1862—91, 1863—92 etc. and in this way we found consecutive means for 30 years and these mean values showed clearly secular variations of all the meteorological elements.

In 1935 we proposed to the International Meteorological Organisation to define the notions «climate» and «climate fluctuations» and the result was that the climate was defined as the mean climatic conditions after a smoothing over 30 years, and the climatic fluctuations as the variations of these 30 — year means. The variations should be referred to a normal period provisionally fixed to the years 1901—1930.

After that we could go on with our researches being sure that investigators in other countries on the subject would follow the same lines.

The results of our studies are given in 4 papers¹ published in the years 1940—44 and treat the variations of the climate of Norway from the years for which observation material was available up to the year 1940.

¹ *Th. Hesselberg und B. J. Birkeland: Säkulare Schwankungen des Klimas von Norwegen. Die Lufttemperatur. Geof. Publ. Vol. XIV, no. 4, Oslo 1940.*

Th. Hesselberg und B. J. Birkeland: Säkulare Schwankungen des Klimas von Norwegen. Der Niederschlag. Geof. Publ. Vol. XIV, no. 5, Oslo 1941.

Th. Hesselberg und B. J. Birkeland: Säkulare Schwankungen des Klimas von Norwegen. Luftdruck und Wind. Geof. Publ. Vol. XIV, no. 6, Oslo 1943.

Th. Hesselberg und B. J. Birkeland: Säkulare Schwankungen des Klimas von Norwegen. Die Luftfeuchtigkeit. Geof. Publ. Vol. XV, no. 2, Oslo 1944.

As a decennium now has passed since that time it seems desirable to continue these studies until the year 1950 in order to see how the climate conditions are developing actually.

It seems also desirable to examine to what extent the new data confirm the relationship between the variations of the different meteorological elements that we found by our previous investigations.

Before we do so some of the main features of the climate variations will be mentioned.

2. The Climatic Variations until the Period 1911—40.

During the 200 years that have elapsed since the meteorological observations began in Norway there has been incessant climate variations. The changes that took place before 1860 are, however, smaller than those occurring later and the largest variations took place in the 1930- years. The changes were greatest in the winter and the autumn, smaller for the spring and smallest for the summer. The largest variation took place in January and the smallest ones in July, the months for the yearly maximum and minimum of temperature in Norway. The variations were greater in the northern parts of the country than in the southern parts and they were greatest in Spitsbergen. Further they were larger in the interior of the country than along the coasts.

From the 1860- years the 30- year means of the atmospheric pressure began to rise at Posta Delgada and at the same time the Icelandic Low became deeper and moved northwards with the effect that the dominating southern air currents from the southwest over NW-Europe augmented in force. In the neighbourhood of Norway the atmospheric pressure had fallen more over the sea than over land and the result was an additional air current from SSE, in force about 20 % of the mean southern stream.

This was confirmed by the wind statistics, that showed an increase of the frequency of southern winds. In Oslo the frequency of southern winds augmented with about 25 %, while the winds from north became less frequent with about 20 %. At the same time the frequency of winds from east increased a little while the number of winds from west diminished. The wind statistics for Oslo thus indicate an additional stream of air from SSE.

The increasing air current from SSE brought milder and more humid air from more southern latitudes and give a direct explanation of the fact that the temperature rose all over the country and that the humidity and the precipitation augmented over great parts of Norway.

On the average for the whole country the mean annual temperature rose about 0.6° C. The rise of temperature was smallest at the south-western stations and augmented toward east and north. For Oslo it was 0.5°, in Skudenes 0.2°, in Bergen 0.4°, at Finmark 1.0° and at Spitzbergen about 2° C.

The rise of the temperature seems on the whole not great, but it is great enough to elevate the annual isotherms 100 m or to push them 200—300 km. further to the north.

On the average the vapour pressure increased with 0.4 mbar, that corresponds with 5 % augmentation of the water vapour in the air. At the same time the relative humidity increased with 1 1/2 percent, but this rise is not valid for all stations.

The explanation of this fact is simple enough. The augmenting air currents from south brought warmer air with a greater content of water vapour. On the way toward north the air is cooled and thus gets a higher relative humidity. The greatest increase of the relative humidity we found on the eastern and southern slopes of the central mountain ridge, where the air was cooled during the ascent. On the other side of the mountain ridge where the additional air current descends and the air is warmed there was no increase or even a decrease of the relative humidity.

As an augmenting air current from the south brings more water vapour in over Norway we must expect an increase of the precipitation over the country as a whole. The observations showed that this increase was about 10 % in the eastern part of the country and on the eastern and southern slopes of the central mountain ridge, while the precipitation decreased on the western and northern slopes of the ridge i. e. on the leeward side of the increasing winds from SSE.

We thus see that there are close relations between the secular variations of the different meteorological elements and that these relations are easily explained from the physical laws. The variations are large enough to have an appreciable influence on the living conditions in a country that

as Norway is situated at the northern limit of the inhabited world. The glaciers have withdrawn considerably, the upper limit for the woods have risen, the conditions for agriculture were improved, the amount of sea ice diminished so that the yearly shipping season between Norway and Spitzbergen augmented from 100 to 200 days, the considerable changes in the water transport of the rivers, have effect on the electricity production, the higher temperature in the coastal waters were of importance for the fisheries etc.

It is thus evident that it is of considerable interest not only for scientific but also for practical reasons to continue the study of the variations of the climate of Norway. In doing so we will follow the plan of the preceding papers, with the simplifications that seem reasonable.

This resume only gives a very short account and we must for further information refer to our original papers on the secular variations until the year 1940.

3. Tables for the Climatic Variations 1941—50.

The tables for the climatic variations in the years 1941—50 have been computed in exactly the same way as for the years before 1941 so that they form a direct continuation of the former tables. The method of computation is described in the publication «Säkulare Schwankungen des Klimas von Norwegen».

The stations used are also the same as in the previous publications. For some of them we can however not give the data up to the year 1950 because the series of observations have been broken or have lost the homogeneity through changes at the stations. For these stations the data have only been given up to the date of the break in homogeneity.

It should also be mentioned that we have discontinued the publication of the tables for climatic variation for each month, because they do not give much more than can be obtained from the tables for the different seasons and the year. Such tables further give a better smoothing than the monthly tables. We have reckoned:

December, January, February	as the winter.
March, April, May	as the spring.
June, July, August	as the summer.
September, October, November	as the autumn.
1st December to 30th November	as the year.

This is made because it was done in our previous publications and the present paper is meant to be a direct continuation of the former ones.

The tables 1 — 3 give the data for the climatic variations in the decade 1941—50. As some of the tables in the previous publications have only been given up to the year 1938, the tables 1 — 3 in these cases are completed for the years 1939—40.

Table 1 gives the departures from the mean values for the period 1901—30, after 30 years smoothing, for the atmospheric pressure, the air temperature and the precipitation.

Table 2 gives the departures from the mean values for the period 1901—30, after 10 years smoothing for the same meteorological elements as in table 1.

Table 3 contains the Buys Ballots excess series "overmaat" from the departures from the mean values for the period 1901—30.

The tables 3 have been used for the computation of the Tables 1 — 2, and are published because they form a convenient basis for research of periodic variations of the elements. They have not been published for the precipitation, because we at the time of the former publications considered the variations of this element to be so influenced by the topographic and local conditions that they should be of no general interest. Later results have shown that the variations of the precipitation amount are of the same general character as for the other meteorological elements. The Buys Ballots excess series for the precipitation are however stored in our archives and will be at disposal for future researches of periods from the year 1900 onwards. It is possible that these series are especially well adapted for such studies because the variations are large for this element.

Most of the stations used in the earlier tables have been kept unaltered during the period 1941—50, except our arctic stations and other stations especially in Finmark that were destroyed during the war.

The series of homogenous observations has thus been broken for the following stations:

Kristiansund	from April1940
Jan Mayen	from September .1940
Bjørnøya	from August1941
Spitzbergen	from September.1941
Vardø	from August.1944
Sørvaranger	from October . .1944
Alta	from October1944

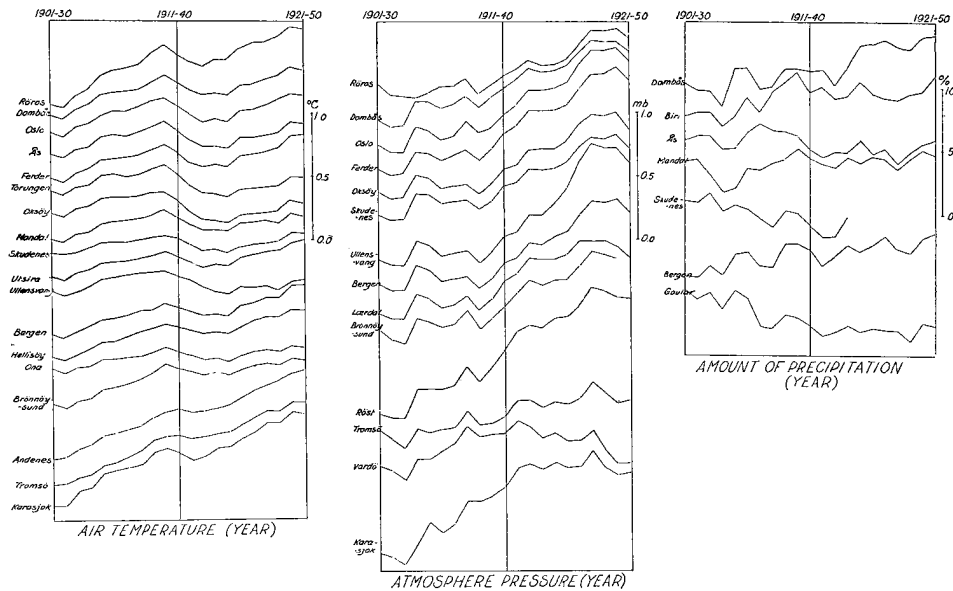


Fig 1. Variations of the 30-year means of the meteorological elements from the period 1901—30 to the period 1921—50, for the year from December to November.

4. The Variations of the 30-years Means from the Period 1911—40 to the Period 1921—50.

In order to facilitate the discussion of the climatic variations of the different meteorological elements during the years 1941—50 the graphical representations in figs. 1 — 3 have been made.

In Fig. 1 we see these variations for the yearly means of the atmospheric pressure, the air temperature, and the amount of precipitation. All the curves have been drawn from the period 1901—30 until the period 1921—50.

From our earlier publications we know that the mean atmospheric pressure for the year diminished until the period 1903—1932 and that it until the period 1909—38 was rising slowly. We now see that this rise has continued and augmented, so that the atmospheric pressure in the period 1918—47 was about 0.5 mbar higher in Norway than in the period 1909—38.

For the air temperature the curves show that the general rise of the temperature in the period 1910—39 was replaced by a sinking temperature that chiefly was caused by the three cold winters 1940—42. From the period 1913—42, however, the general rise of the air temperature continued, so that the mean yearly temperature for the period 1921—50 was $0^{\circ}.2 - 0^{\circ}.4$ C higher than in the period 1913—42.

The curves for the annual amount of precipitation do not show great variations in the last decennium. We have a rise of 3 % at Dombås, but for the other stations the rise is only about 1 % except for Gaular where it is zero. As we know from our earlier publication the number of stations with long observations series of precipitation is insufficient for a study of an element with so great local and topographical variations as the precipitation.

On the whole the climatic changes in the decennium 1940—50 is characterized by an augmented rise of atmospheric pressure, a slower rise of air temperature and of small variations in the amount of precipitation.

This is valid for the yearly means. The variations of the 30-year means for the different seasons must be studied separately. For the temperature these seasonal variations are illustrated in Fig. 2.

We see here that there is a rapid fall in the climatic winter temperature during the three years 1940—42 and later there is only a small rise. In the same three years the spring temperatures were also low so that the curves for the climatic variations for the spring show a marked fall of temperature, but in the following years the rise of temperature is greater than for the winter. For the summer and still more for the autumn the three cold years were more normal and we therefore have not the

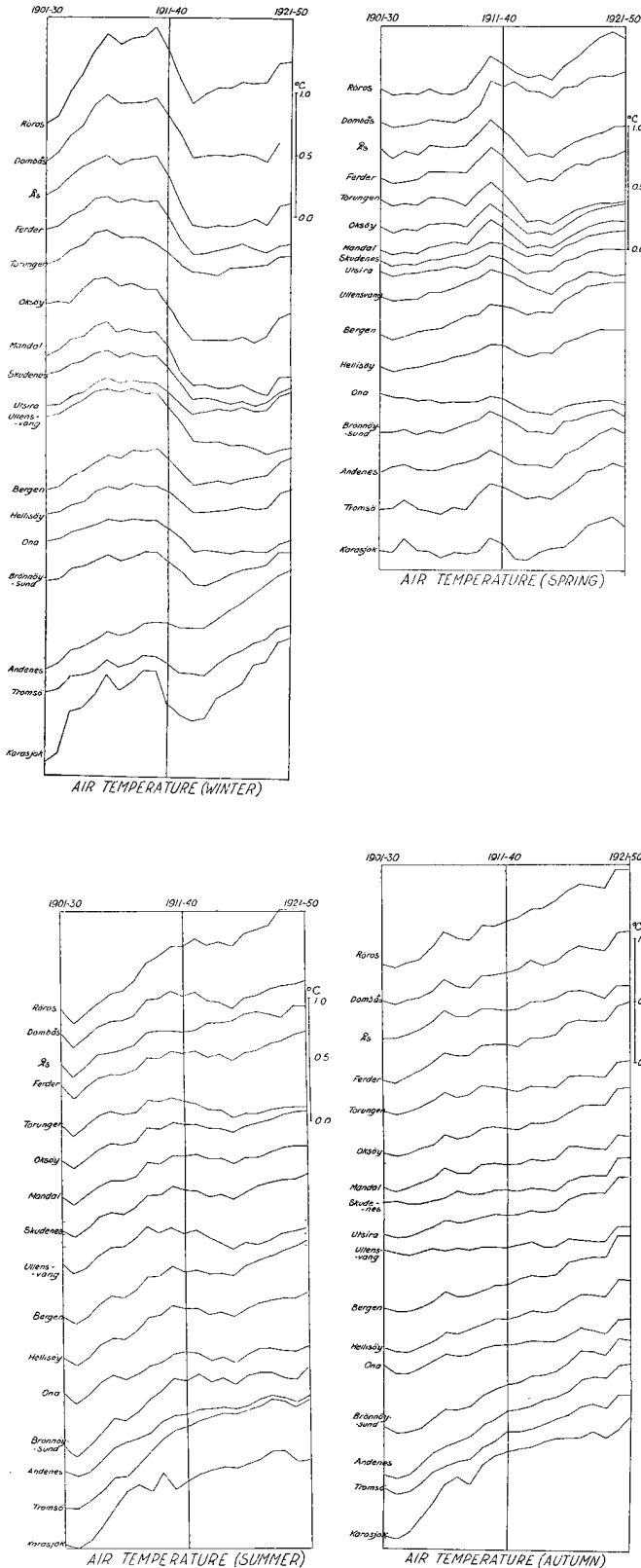


Fig 2. Variations of the 30-year means of the air temperature from the period 1901—30 to the period 1921—50, for the seasons.

same marked fall of climatic temperature as we found for the winter and the spring.

Fig. 3 gives an illustration of the climatic changes of the air temperature during the last 100 years from the period 1821—50 until the period 1921—50. Only every tenths of the computed values have been utilized so that the curves give a simplified picture of the secular temperature variations. We see how the temperature was falling slowly until the period 1861—90 when it began to rise and in the last period 1921—50 the annual temperature was still rising.

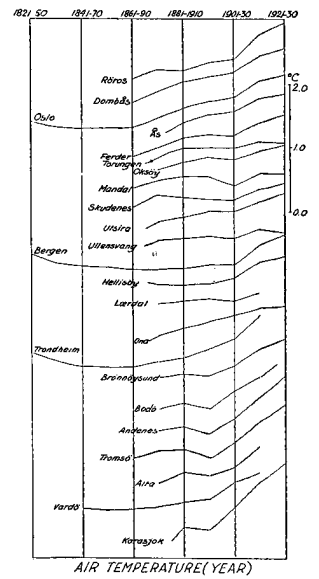


Fig 3. Simplified survey of the variations of the 30-year means of the air temperature during 100 years, for the year December to November.

5. The Variations of the 10-year Means from the Period 1931—40 to the Period 1941—50.

The variations of the 10-year means of the atmospheric pressure, the air temperature and the amount of precipitation are illustrated in fig 4. Curves are here drawn for the annual means from the periods 1921—30 until the period 1941—50.

As for the 30-year means we find a general rise of atmospheric pressure, but it is for the 10-year means interrupted by small periods of falling pressure.

For the air temperature we find that the general rise of temperature until the period 1930—39 has been replaced by a general fall in the temperature in the last decennium, so that the mean temperature for the years 1941—50 generally is lower than it was in the decennium 1931—40. This is different from what we found for the 30-year means, for which the general rise of temperature continued up to our last period 1921—50.

From our earlier publication we know that there especially in the beginning of the 1920-years was a general rise in the amount of precipitation at all Norwegian stations that were on the windward (south-eastern) side of the great central moun-

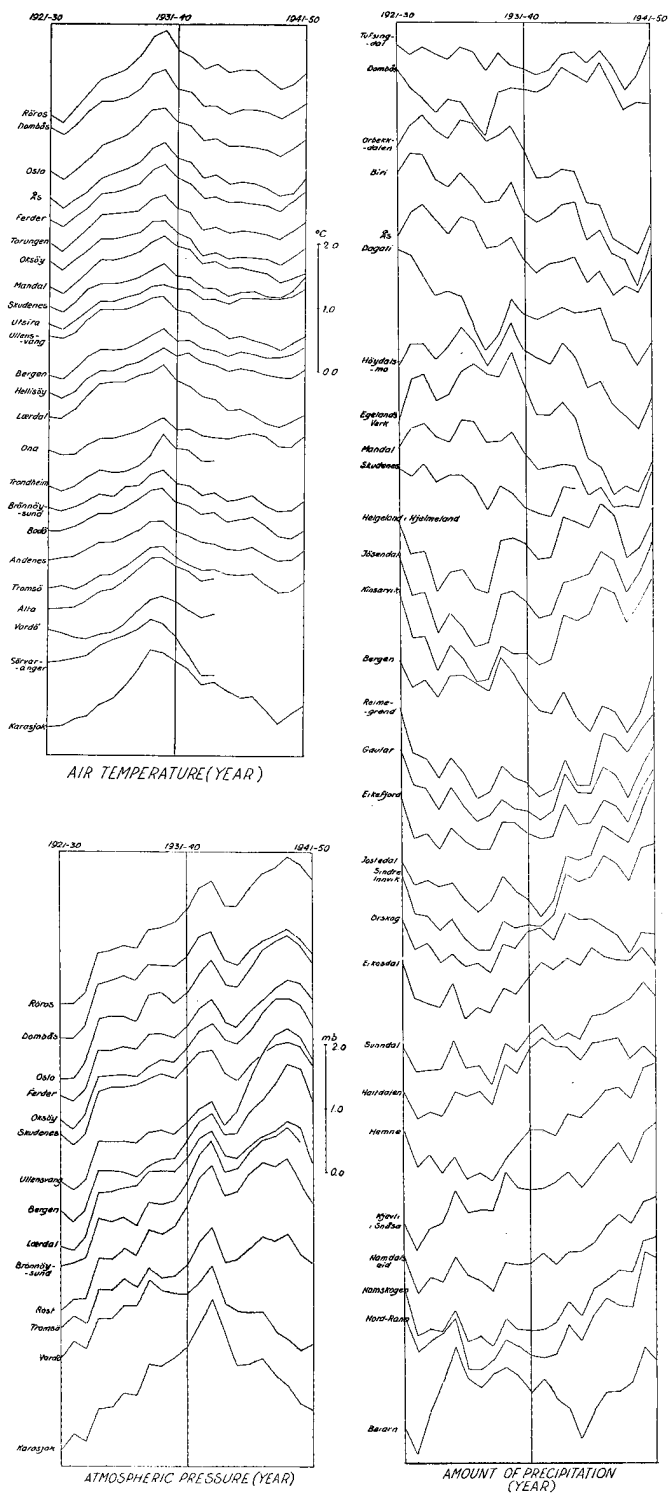


Fig 4. Variations of the 10-year means of the meteorological elements from the period 1921—30 to the period 1941—50, for the year from December to November.

tain ridge in relation to the augmenting SSE-winds in this period. For the stations on the leeward side there was a diminishing precipitation. From figure 4 we see that this has been altered, so that we now have an augmenting amount of precipitation at all stations except for those on the south-eastern side of the central mountain ridge.

The variations of the amount of precipitation in the 1940-years thus are directly inverse to those in the 1930-years.

We thus have found for the 10-year means a rather different picture from that given by the 30-year means. In order to discuss more easily these 10-years means we will limit ourselves to the examination of the means for the two periods 1941—50 and 1931—40 and the differences between them as given in Table A.

In this table $\bar{P}_{1931-40}$ and $\bar{P}_{1941-50}$ give the mean deviation of atmospheric pressure in mbar for the year in the periods 1931—40 and 1941—50 from the mean yearly pressure in the period 1901—30.

Correspondingly $\bar{T}_{1931-40}$ and $\bar{T}_{1941-50}$ give the mean deviation of the air temperature in degrees Celsius for the year in the periods 1931—40 and 1941—50 from the mean annual temperature in the period 1901—30.

Finally $\bar{N}_{1931-40}$ and $\bar{N}_{1941-50}$ give the mean deviation of the annual amount of precipitation for the same two decades from the mean annual precipitation in the period 1901—30, expressed in percents of this precipitation.

Further the designations:

$$\begin{aligned} \Delta\bar{P} &= \bar{P}_{1941-50} - \bar{P}_{1931-40}, \Delta\bar{T} = \bar{T}_{1941-50} - \bar{T}_{1931-40}, \\ \Delta\bar{N} &= \bar{N}_{1941-50} - \bar{N}_{1931-40} \Delta\bar{P}' = \bar{P}_{1926-35} - \bar{P}_{1912-21}, \\ \Delta\bar{T}' &= \bar{T}_{1926-35} - \bar{T}_{1912-21}, \Delta\bar{N}' = \bar{N}_{1926-35} - \bar{N}_{1912-21} \end{aligned}$$

have been used in the tables A.

The values for the yearly means $\Delta\bar{P}'$, $\Delta\bar{T}'$ and $\Delta\bar{N}'$ are repeated from our earlier publication where they are given in the tables 12, 15 and 16 of «Teil 3: Luftdruck und Wind». They are there thoroughly discussed and they are characteristic for a period with augmenting winds from SSE.

When we compare the variations of the 10-year means in the period 1941—50 with those in the period 1921—35 we see clearly the great change both for the temperature and the precipitation.

Tables A. The 10.-year Mean Deviations for the Decades 1931—40 and 1941—50 and the Differences between them

Atmospheric pressure.

Station	$\bar{P}_{1931-40}$	$\bar{P}_{1941-50}$	$\Delta\bar{P}$	$\Delta\bar{P}'$
Røros	0.70	1.18	0.48	0.00
Dombås	0.95	1.01	0.06	0.58
Oslo	0.91	1.39	0.48	0.61
Ferder	0.87	1.31	0.44	0.65
Oksøy	0.73	1.05	0.32	0.25
Skudenes	0.88	0.92	0.04	0.51
Ullensvang ...	0.77	1.79	1.02	0.45
Bergen	0.69	1.29	0.60	0.01
Lærdal	1.02	0.92	-0.10	0.48
Brønnøysund .	0.84	1.45	0.61	0.30
Røst	1.45	1.53	0.10	0.67
Tromsø	0.54	0.59	0.05	0.27
Karasjok	1.46	0.50	-0.96	0.50
Vardø	0.70	-0.09	-0.79	0.25
Ivigtut	0.07	0.03	-0.04	0.17
Vestmannaeyar			-0.47	-0.28
Stykkisholm...			-0.02	0.70
Thorshavn	0.82	0.06	-0.76	0.22
Edinburgh	0.67	1.01	0.34	0.38
Valencia	0.86	1.69	0.83	-0.03
Greenwich	0.12	1.63	1.51	-0.06
København ...	0.33	0.77	0.44	0.26
Uppsala	0.46	-0.46	-0.92	0.33
Ponta Delgada	-0.44	-0.40	0.04	-0.38

The general rise of temperature in the years 1921—35 is replaced by a general fall in the decennium 1941—50 and the precipitation has changed so that regions with augmenting precipitation in the first period have diminishing precipitation in the last decennium and vice versa. The variations in the precipitation are further illustrated in Fig 5 that give the geographical distribution of the rise of the precipitation for the two cases.

For the atmospheric pressure the difference is not so evident from the table. We see, however, that the rise of pressure generally spoken is greater for the stations in the west and on the whole diminishes towards east, what means augmenting northerly winds.

This is more conspicuous in the map in Fig 6, that gives the isallobars $\Delta\bar{P} = \bar{P}_{1941-50} - \bar{P}_{1931-40}$.

The connection between the different variations of the 10 — year means seems then evident.

Air temperature.

Station	$\bar{T}_{1931-40}$	$\bar{T}_{1941-50}$	$\Delta\bar{T}$	$\Delta\bar{T}'$
Røros	0.99	0.66	-0.33	0.53
Dombås	0.60	0.39	-0.31	0.34
Oslo	0.69	0.42	-0.25	0.27
Ås	0.52	0.24	-0.28	0.24
Ferder	0.61	0.40	-0.21	0.42
Torungen	0.35	0.14	-0.21	0.12
Oksøy	0.47	0.38	-0.09	0.16
Mandal	0.55	0.12	-0.43	0.27
Skudenes	0.49	0.38	-0.11	0.43
Utsira	0.48	0.50	0.02	0.21
Ullensvang ...	0.35	-0.06	-0.41	0.31
Bergen	0.67	0.58	-0.09	0.54
Hellesøy	0.63	0.42	-0.21	0.45
Ona	0.29	0.18	-0.11	0.05
Brønnøysund .	0.64	0.39	-0.25	0.49
Andenes	0.91	0.62	-0.29	1.04
Tromsø	0.90	0.50	-0.40	0.84
Karasjok	1.28	0.59	-0.59	1.02

Amount of Precipitation.

Stasjon	$\bar{N}_{1931-40}$	$\bar{N}_{1941-50}$	$\Delta\bar{N}$	$\Delta\bar{N}'$
Tufsendal ...	2.91	7.29	4.28	7.11
Ørbekkedalen .	6.12	5.40	-0.72	14.13
Dombås	3.70	1.62	-2.08	
Biri	2.26	-2.20	-4.46	15.22
Ås	-0.98	-2.30	-1.32	14.82
Dagali	-3.49	-7.88	-4.39	-0.64
Høydalsmo....	7.08	-0.03	-7.01	14.82
Egelands Verk.	9.28	-2.60	-11.88	19.41
Mandal	2.77	0.14	-2.68	14.11
Helgeland				
i Hjelmeland	4.54	7.80	3.26	-2.11
Jøsendal	-4.68	4.93	9.61	-12.07
Kinsarvik	-6.83	4.31	11.54	-9.37
Bergen	0.80	3.54	2.74	1.00
Reimegrend ...	-11.09	1.59	12.68	-11.93
Gaular	-5.54	5.41	10.96	-3.32
Eikefjord	-3.00	7.27	10.27	-5.60
Jostedal	-7.63	11.31	18.64	-9.33
Sindre i Innvik.	-3.41	9.10	12.51	-4.75
Ørskog	1.73	0.77	-0.61	-0.31
Eikisdal	0.51	2.23	1.72	-4.94
Sunndal	3.46	9.17	5.71	-3.05
Haltdalen	11.07	9.69	-1.38	11.30
Hemne	6.42	16.88	10.46	-0.71
Kjevli i Snåsa .	13.07	23.43	10.37	-18.06
Namdalseid ...	1.39	11.83	10.49	-3.97
Namskogan ...	-5.18	9.61	14.79	-9.96
Nord-Rana ...	-5.06	10.15	15.21	-7.54
Beiarn	7.10	12.03	4.93	9.86

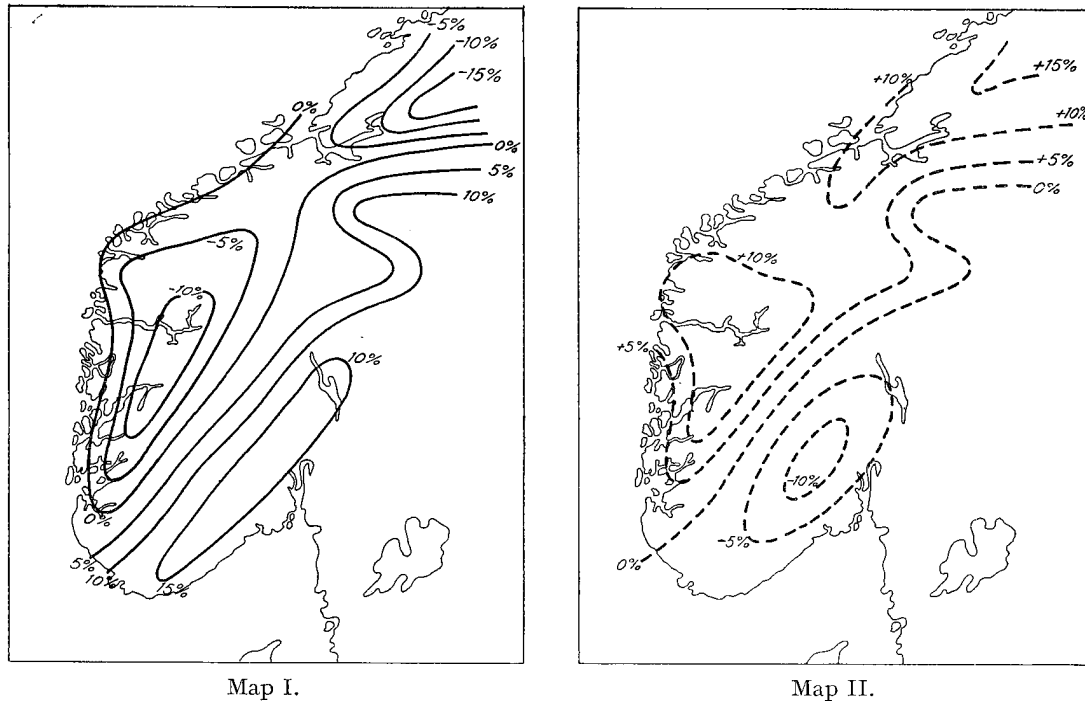


Fig 5. The increase of annual precipitation from the period 1912—21 to the period 1926—35 (Map 1), and from the decennium 1931—40 to the decennium 1941—50. (Map II).

In the years 1921—35 there were augmenting south-eastern winds causing rising temperatures all over the country and augmenting precipitation except on the leeward (north-western) side of the central mountain ridge, where the augmenting descending air flow caused a diminishing precipitation.

In the decennium 1951—50 the conditions were almost inverse. The augmenting northerly winds

have caused sinking temperatures over Norway and augmenting precipitation in the northern and western slopes of the central mountainridges while the precipitation has diminished on the lee side, in this case in the south-eastern part of Norway.

In this connection it would have been of value to continue the study of the winds in Oslo, in order to ascertain directly the augmentation of the northerly winds in the 1940-years, but it is not possible, because the place of observation in 1937 had to be removed from the Astronomical Observatory to Blindern. The old Observatory had a rather free site on a small hill but was protected against northern winds by a low ridge. At Blindern the site is more free, so that the number of calms is considerably lower and further the small valley at Sognsvann through the mountains in north make northern winds rather frequent. For atmospheric pressure, air temperature and humidity we have been able to combine the observation series at the old Oslo Observatory and at Blindern without great difficulty, but it has been more difficult for the precipitation and impossible for the wind.

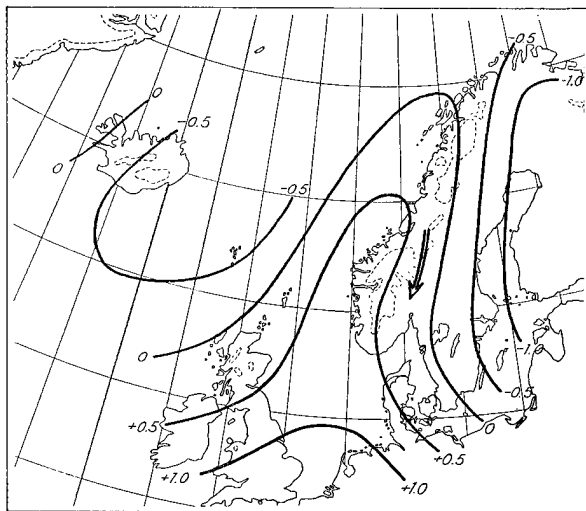


Fig 6. The rise of atmospheric pressure from the decennium 1931—40 to the decennium 1941—50.

In Fig 7 we find the variations of the 10-year-means of the air temperature for the different sea-

sons. We see here how the considerable rise of the winter temperatures in the 1930-years is replaced by a still more rapid decrease during the 3 cold war winters 1940—42, and even afterwards the mean winter temperatures are sinking until the year 1948.

For the spring we see a small increase of temperature in the southeastern part of Norway, but elsewhere a small decrease.

In summer the great increase of temperature is replaced by a rather constant temperature except in northern Norway where there are sinking temperatures, and the same is valid for the autumn.

In Fig 8 we see a simplified illustration of variations of the 10-year temperature means. The curves have been drawn only by hjelp of the means for the decades 1901—10, 1911—20...1941—50 so that there are only means completely independent of each other.

We see here a rise of the annual air temperature at all stations. The increase is, however, not uniform. There is a modest increase in the decade 1911—20, then there are for most stations a small decrease in 1921—30 followed by a rapid rise in the 1930-years. Finally the temperature in the 1940 years are again lower than in the preceding decennium. From these curves it is evident, that the decrease of temperatures in the years 1941—50 do not give basis for any conclusion regarding the further development of the temperature conditions.

6. The Three Cold Winters 1940—42.

After the rapidly rising wintertemperatures in the 1930-years the three cold winters 1940—42 initiated a period with somewhat lower temperatures. It therefore may be of interest to look a little more on the meteorological conditions in these years. As they were approximately the same during the whole period, these three years can be treated meteorologically together by studying the mean values during the period 1940—42.

As elsewhere in this papers we do not treat the mean values themselves but only the departures from the corresponding mean values for the period 1901 —30. These departures are given below in the tables B.

The first table B gives the mean departures of the atmospheric pressure in millibars. We see that the pressure is higher for the winter than in

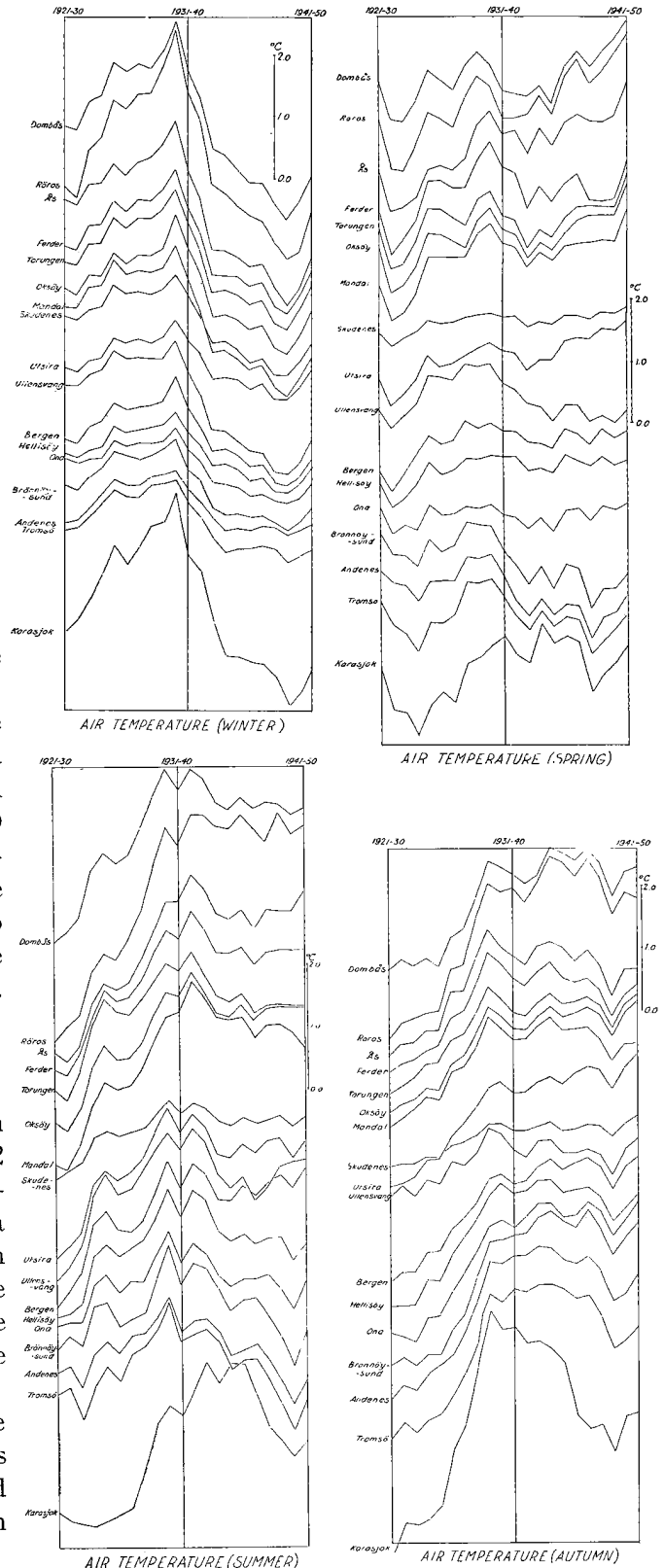


Fig 7. Variations of the 10-year means of the air temperature from the period 1921—30 to the period 1941—50, for the seasons.

Tables B. The Mean Departures for the Period
1940—42 from the Mean Values for
the period 1901—30.

Atmospheric Pressure.

Station	Departures (mbar)				
	Win-ter	Spring	Sum-mer	Au-tumn	Year
Røros	5.8	3.0	0.6	0.3	2.3
Dombås	6.4	2.7	0.4	0.5	2.4
Oslo	6.2	3.6	0.8	0.8	2.7
Ferder	5.8	2.9	0.8	0.7	2.4
Oksøy	5.5	2.7	0.7	0.8	2.3
Skudenes	5.6	2.3	0.2	0.4	1.9
Ullensvang	6.2	2.6	0.1	0.4	2.2
Bergen	6.3	2.8	0.7	0.8	2.4
Lærdal	6.9	3.1	0.6	0.7	2.7
Ona	6.9	3.0	0.2	0.3	2.3
Trondheim	6.9	3.2	0.3	0.1	2.5
Brønnøysund	7.7	3.5	0.5	0.5	2.9
Bodø	7.8	3.4	0.1	0.4	2.8
Røst	8.4	4.2	0.8	1.1	3.5
Tromsø	6.5	2.3	-0.5	0.3	2.0
Alta	6.8	2.5	0.6	1.5	2.8
Vardø	4.2	0.7	-0.5	0.2	1.1
Karasjok	6.2	2.6	0.8	1.7	2.9
Haparanda	6.9	3.1	1.6	1.4	3.2
Uppsala	4.4	1.1	-0.4	-0.9	0.8
København	2.5	1.4	0.2	0.2	1.1

the period 1901—30 and that it is highest for the northwestern stations and is decreasing towards east. This is seen better in Fig 9, that shows that we in the period must have had considerable additional winds between north and east.

These cold winds give the explanation for the low temperatures all over the country given in the second part of the tables B. The spring was also cool, while the summer and autumn temperatures were more normal.

The next tables B shows that the absolute humidity during the winters 1940—41 is lower than normal as can be expected in connection with low temperatures. The relative humidity is in accordance with the additional air stream (Fig 9) high on the windward side (Trondheim) and lower on the leeward side (Oslo) and still more for the west-coast (Bergen).

Corresponding features are found for the distribution of amount of precipitation given in the next part of the tables B. We see that the precipitation in these cold winters was low and especially

Air Temperature.

Station	Departures (C°)				
	Win-ter	Spring	Sum-mer	Au-tumn	Year
Røros	-5.4	-0.9	0.8	0.7	-1.1
Dombås	-4.4	-0.7	0.2	0.4	-1.1
Oslo	-4.0	-0.7	0.3	0.6	-0.8
Ås	-5.1	-1.5	0.3	0.2	-1.4
Ferder	-3.9	-1.8	0.3	0.2	-1.2
Torungen	-3.9	-2.0	-0.1	0.1	-1.5
Oksøy	-4.0	-1.6	0.3	0.2	-1.2
Mandal	-4.1	-1.3	0.7	0.2	-1.0
Skudenes	-3.0	-0.6	0.4	-0.2	-0.8
Utsira	-2.4	-0.7	0.1	0.0	-0.7
Ullensvang	-3.6	-0.7	0.2	-0.1	-0.9
Bergen	-2.4	-0.1	0.3	0.4	-0.4
Hullisøy	-2.0	-0.3	0.2	0.3	-0.5
Lærdal	-4.3	-1.0	0.3	0.3	-1.1
Ona	-2.2	-0.8	-0.2	0.1	-0.7
Trondheim	-3.2	-0.8	0.2	0.7	-0.7
Brønnøysund	-2.5	-1.1	0.1	0.4	-0.7
Bodø	-1.8	-0.9	0.3	0.6	-0.4
Andenes	-0.7	-0.9	0.1	0.6	-0.2
Tromsø	-1.2	-0.9	0.3	0.4	-0.4
Alta	-1.6	-1.2	0.8	0.4	-0.4
Vardø	-1.4	-1.4	0.2	0.1	-0.7
Sørvaranger	-2.9	-2.1	0.1	-0.2	-1.3
Karasjok	-3.4	-0.8	0.7	0.7	-0.6

Relative Humidity.

Station	Departures (%)				
	Win-ter	Spring	Sum-mer	Au-tumn	Year
Røros	0.1	-1.9	2.2	1.1	0.0
Oslo	0.0	-4.9	2.2	-0.6	-0.3
Oksøy	6.8	0.3	2.7	-0.4	0.3
Bergen	-4.4	-0.7	5.2	3.0	0.3
Trondheim	8.2	10.0	5.9	-1.2	5.3
Bodø	9.4	6.1	6.9	2.1	6.0
Tromsø	2.2	-1.1	0.7	-0.7	-0.3
Vardø	1.1	-0.9	-2.0	-2.3	-0.3

Vapour Pressure.

Station	Departures (mm Hg)				
	Win-ter	Spring	Sum-mer	Au-tumn	Year
Røros	-0.6	-0.2	0.6	0.1	0.0
Oslo	-0.9	-0.6	0.2	-0.2	-0.3
Oksøy	-0.7	-0.5	0.2	-0.0	-0.3
Bergen	-0.8	-0.0	1.1	0.3	0.2
Trondheim	-0.4	0.6	0.9	0.0	0.3
Bodø	0.0	0.2	0.9	0.2	0.3
Tromsø	-0.2	-0.2	0.3	0.0	-0.0
Vardø	-0.1	-0.3	-0.0	-0.1	-0.2

Amount of Precipitation.

Station	Departures (%)				
	Winter	Spring	Summer	Autumn	Year
Tufsingdal	-1.6	-8.8	3.7	4.8	-1.9
Ørbekkedalen	-10.0	-9.9	-1.4	2.4	-18.9
Biri	-11.4	-10.5	5.8	0.7	-15.4
Oslo	-10.6	-3.0	6.7	3.4	-3.5
Dagali	-8.7	-8.7	-4.2	1.9	-19.7
Ås	-11.5	-8.0	5.8	0.8	-12.9
Høydalsmo	-11.7	-6.3	0.3	6.0	-11.7
Egeland Verk	-14.4	-6.3	-0.6	6.9	-14.4
Mandal	-16.4	-4.3	0.2	6.6	-13.9
Skudenes	-12.6	-3.3	2.1	1.1	-12.7
Helgaland					
i Hjelmeland	-16.5	-5.5	-0.3	6.7	-15.6
Jøsendal	-19.5	-9.0	-0.2	3.9	-24.8
Kinsarvik	-18.1	-7.8	0.7	7.3	-17.9
Bergen	-13.9	-7.1	1.1	0.7	-19.2
Reimegrend	-17.5	-9.1	0.0	2.1	-24.5
Gaular	-13.2	-6.7	1.4	3.2	-15.3
Eikefjord	-9.3	-4.2	2.0	2.5	-9.0
Jostedal	-14.3	-7.7	6.0	4.2	-11.8
Sindre i Innvik	-11.3	-5.0	6.2	7.3	-2.8
Ørskog	0.4	-3.2	5.1	5.7	8.0
Eikesdal	-1.3	-2.9	0.9	9.7	6.4
Sundal	-3.8	0.9	0.4	9.6	7.1
Hemne	2.1	0.3	-0.1	9.4	11.7
Kjevli i Snåsa	2.7	-2.1	2.7	14.5	16.8
Namdalseid	-2.0	3.7	4.4	4.7	10.8
Namskogan	-1.5	-5.3	1.2	0.0	-5.6
Nord-Rana	-4.7	-6.2	5.5	0.2	-5.2
Beiarn	1.8	-3.1	7.8	3.8	10.3
Sætermoen	11.9	2.3	4.9	1.8	20.9
Lyngseidet	21.5	5.1	3.5	6.2	36.3
Børselv	6.3	0.9	-0.2	3.4	10.4
Bjørnsund	-0.1	1.8	6.6	-11.0	-6.3

Frequency of Wind Directions.

Wind direction	Departures (%)			
	Winter	Spring	Summer	Autumn
North	23.9	7.9	4.3	6.7
East	-5.0	-0.2	-0.1	-2.3
South	-17.7	-9.6	-6.2	-8.6
West	-1.1	1.8	1.9	4.3

on the leeward side of the mountain ridge that in this case comprises both the southeastern and the western parts of the country. On the windside the deficit is less and is somewhere replaced by a surplus (Hemne, Kjevli i Snåsa). For the understanding of the figures we will recall that the de-

partures are given in percents of the mean annual precipitation — and therefore are relatively low for the seasons, compared with those for the year.

In the last table B we find for Oslo the departures in the frequency of the different winddirections from the frequencies in the period 1901—30. As mentioned in the foregoing chapter the station Oslo was removed in 1937 from the old Observatory to the new Meteorological Institute at Blindern and this change has had a considerable influence on the frequencies of the wind direction. The frequency departures given in the table is therefore to a great extent due to the removal. On the other side it is seen that the augmentation in the frequency of the northern winds is so much larger in the winter than in the other seasons that a substantial part of it certainly must come from a real general augmentation of the northern winds in these cold winters.

As will be seen from this survey over the meteorological conditions during the cold winters 1940—42 we find the same physical relations between the means of the different meteorological elements as we are accustomed to see on the synoptic maps.

As an illustration of the cold winter we give a table over the lowest minimum observed in January 1941 (Table C). The coordinates of the stations are found in the Norwegian Meteorological Yearbooks.

The coldest periods were 1.—3., 16.—20. January. Some of the minimum temperatures in January 1941 are the coldest ones ever observed at the station. The cold temperatures in January and February caused ice difficulties in February. In Fig 10 is reproduced a photo taken by Dr. Dannevig in Skagerak 2 km south of the lighthouse Lille Torungen.

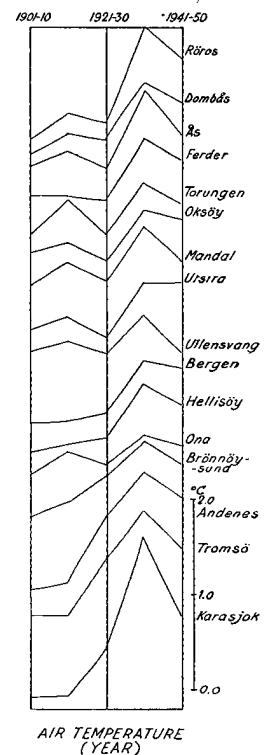


Fig 8. Simplified survey of the variations of the 10-year means of the air temperature from the period 1901—10 to the period 1941—50, for the year from December to November.

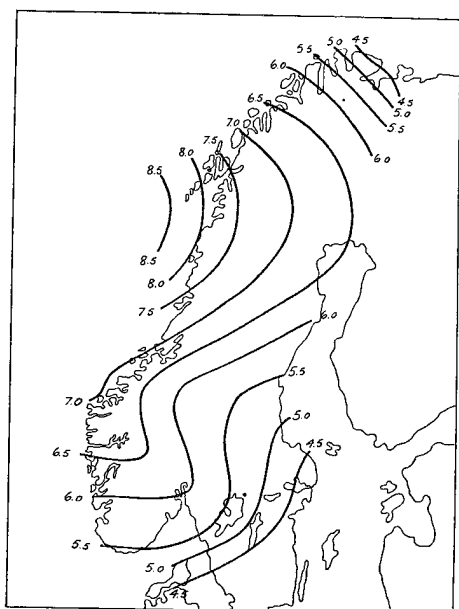


Fig 9. Difference of atmospheric pressure during the winter 1940—42 and the pressure for the winter in the period 1901—30.

7. The Recent Climatic Variations in Svalbard and Finnmark.

As mentioned in chapter 3 the series of homogeneous meteorological observations was broken during the war at our arctic stations and in Finnmark. In Svalbard the stations were destroyed in the year 1940 and in Finnmark in 1943, the stations were as far as possible reestablished at the same places as before the end of the war. For all of them the series must, however, be considered as broken, so that new series have begun after the war.

Table D gives the annual means for a few 5-years periods before and after the war so that a comparison can be made.

As will be seen from this table the mean annual temperatures for Spitsbergen and Bjørnøya are so much lower than before the war, that it seems justified to say that the recent fall in the temperatures extends to the arctic regions.

8. Summary and Remarks.

The temperature observations show that the climate in Norway, as defined by the 30-year means, has become warmer also in the last decennium, but the rise of the temperature has become

Table C. The Lowest Temperatures in January 1941 (C°).

Station	Min. temp.	Station	Min. temp.
Røros	-47.5	Torungen	-19.0
Alvdal	-42.8	Grimstad	-19.0
Engerdal	-37.0	Byglandsfjord ..	-30.0
Ytre Rendal ...	-33.0	Kristiansand...	-21.5
Dombås	-36.3	Oksoy	-14.3
Vinstra	-32.6	Mandal	-19.4
Vollen i Slidre ..	-31.8	Lista	-13.1
Åbjørsbråten ...	-30.0	Tonstad	-26.6
Lillehammer ...	-27.1	Obrestad	-14.9
Rena	-36.2	Sauda	-22.4
Vang i Hedmark	-31.8	Skudenes	-12.8
Østre Toten	-29.1	Utsira	- 9.1
Kutjern	-31.8	Svandalsflona .	-23.0
Flisa.....	-36.3	Ullensvang	-13.4
Bygdøy i Oslo ..	-25.8	Fjærland	-22.3
Blindern i Oslo..	-26.0	Fortun	-22.7
Asker	-25.9	Sunnadal	-24.8
Modum	-30.4	Tingvoll.....	-20.0
Nesbyen	-32.9	Selbu	-24.8
Haugastøl	-32.5	Meråker	-26.5
Dagali	-27.2	Sulstua	-32.4
Svene	-35.0	Ytterøy	-16.8
Kongsberg	-30.9	Kjevli i Snåsa .	-36.2
Gaustatoppen...	-26.5	Nordli	-36.0
Horten.....	-20.8	Majavatn	-27.0
Eidsberg	-29.0	Leka	-17.7
Råde	-34.6	Bjørnfjell.....	-32.0
Brekke Sluse ...	-29.8	Narvik	-18.9
Ferder	-14.5	Dividalen	-29.1
Gvarv	-36.1	Karpbukt	-33.9
Dalen	-23.6	Karasjok	-46.0
Jomfruland	-23.4	Kautokeino....	-38.0
Lyngør	-18.6	Siccajavre	-40.5

Table D. Recent 5 Year Means of the Air Temperature Departures at Meteorological Stations in Svalbard and Finnmark.

Station	Previous series			New series		
	T ₁₉₃₈₋₃₇	T ₁₉₃₄₋₃₈	T ₁₉₃₅₋₃₉	T ₁₉₄₆₋₅₀	T ₁₉₄₇₋₅₁	T ₁₉₄₈₋₅₂
Spitsbergen ...	2.34	2.44	2.30	1.74	1.60	1.44
Bjørnøya	2.24	2.40	2.26	1.26	0.94	1.10
Karasjok	1.50	1.98	1.50	1.02	0.70	0.72
Vardø	0.98	0.62	0.12	0.66	0.58	0.54
Alta	0.98	0.76	0.38	1.00	0.84	0.72
Tromsø	1.00	0.70	0.30	0.76	0.52	0.50
Andenes	0.94	0.74	0.42	0.94	0.74	0.76

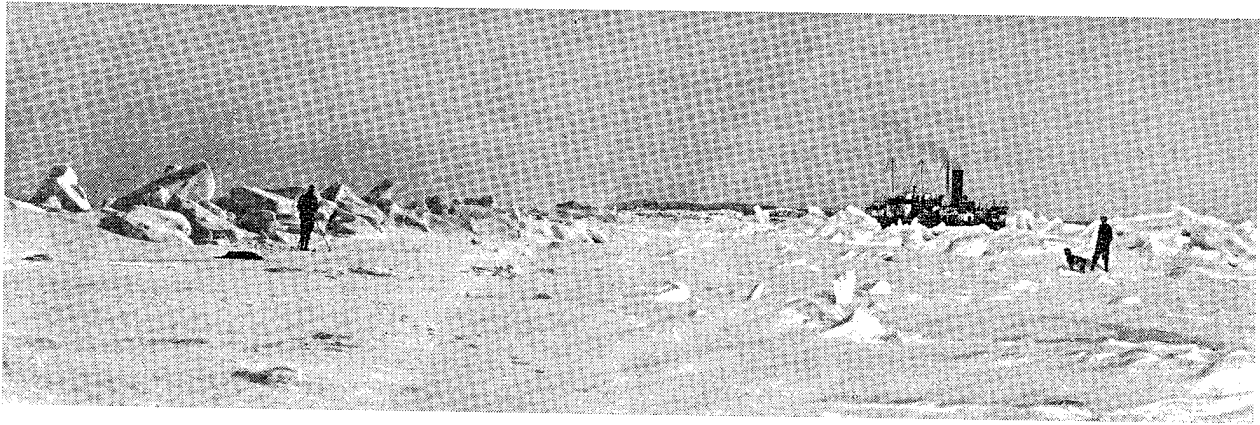


Fig 10. The ice-conditions in Skagerak 2 km south of the lighthouse Lille Torungen 25th January 1941. (After photos taken by Dr. Alf Dannevig).

slower than in the preceding decennium. The mean annual temperature has increased with only $0^{\circ}.1-0^{\circ}.2$ C (see Fig 3).

The mean air temperature in the 30 years period 1921—50 is thus a little higher than in the period 1911—40, but in fact this only shows that the mean temperature in the decennium 1941—50 was a little higher than 30 years ago, in the decennium 1911—20.

In order to find the tendency of the variations of the climate we can compare the mean temperature in the decade 1941—50 with the mean temperature in the *preceding* decade 1931—40. This comparison of the 10-year mean values of the temperature shows that the mean annual temperature in the 1940-years was $0^{\circ}.0-0^{\circ}.4$ C *colder* than in the 1930-years (see Fig 8).

This fall of temperatures is not great but its reality is confirmed by the fact that it is found at all the stations that have been examined. Further we have found that there is at the same time an increase of the winds from north (see Figs 4 and 6), what evidently is a direct cause for the fall in temperature. Further we find a decrease of precipitation on the windward side of the additional northern winds of the central mountain ridge and a decrease on the leeward side. At the windward stations on the west coast the mean precipitation has increased with up to 12 percents and in Trøndelag with up to 15 %, while the amount of precipitation has decreased with up to 11 percents at the stations in the eastern and southern parts of the country that lie on the leeward side for the additional northern winds. (See Fig 5).

The meteorological conditions thus have changed essentially from the preceding decennium; the additional winds from south have been replaced by augmenting winds from north; the rising temperature has been replaced by sinking temperatures and the variation of the amount of precipitation in Norway also have changed to the inverse from the preceding decennium.

We further see that the general fall of atmospheric pressure over northern Europe together with a rising pressure at the Azores that characterized the period of rising temperature in Norway in the 10 years-means has been replaced by a rising pressure in northern Europe and a falling pressure at the Azores (see Fig. 6 and 9).

The difference between the atmospheric pressure at the Azores and Iceland thus has ceased to increase, in fact it in the last decennium has been slightly decreasing, and that signifies a decrease of the general circulation over the Northwestern Europe.

Both the rising air temperatures in Norway since the 1870-years and the present tendency to falling temperature thus are intimately connected with variations in the general circulation as characterized by the pressure difference between the Azores High and the Icelandic Low.

Already in 1916 *Fridtjof Nansen* and *Helland-Hansen*¹ published the idea that variations in the

¹ Bjørn Helland-Hansen and Fridtjof Nansen: Temperature Variations in the North Atlantic Ocean and in the Atmosphere. Introductory Studies on the Cause of Climatological Variations. Smithsonian Miscellaneous Collections. Volume 70 Number 4, 1920.

radiation from the sun should be the initial cause for the climatic variations on the earth. We know, they said, that the sun is not an invariable star, and that the radiation varies, so that the energie absorbed by the atmosphere also must be variable. In periods with augmenting energy received the atmosphere as a whole get higher temperatures. But the atmosphere is as an engine. With more energy received the engine will go faster, or in other words the general circulation must increase in order to smooth out the increased differences in heating at higher and lower latitudes.

Over some parts of the earth there will be more winds from lower latitudes — as the case has been in our country — so they get a relatively great rise of the temperature. Over other parts of the earth there may be an increase of the winds from higher latitudes and here the flow of colder air can be so great that the cooling becomes greater than the heating.

At winter solstice the difference of heating of the equatorial and the polar regions have its maximum value and we therefore at this time of the year have the strongest circulation of the atmosphere (stormy weather in autumn and winter). An increase of the heat received should also have the greatest effect on the circulation in these seasons. And this is exactly one of the characteristic features of the present climatic variations.

As measure for the activity of the sun Nansen and Helland-Hansen used the number of sunspots and they found — as many others — near relations between the sunspots and different phenomena in the atmosphere and sea.

The number of sunspots is certainly not the best measure for the radiation *absorbed* by the atmosphere, but it has the great advantage that we have long series of trustworthy observations, what is not the case with the measurements of the solar constant.

It must be remarked that there has been found so many close relations between the number of sunspots and different atmospheric phenomena that the reality cannot be doubted. The great difficulty is that the relation between the sunspots and a phenomenon has been found different for places quite near to each other and even can change character.

It is, however, easily seen that such things must occur. We have found for instance that the

variations in precipitation can be quite inverse in different parts of Norway, because the effect of an additional airflow is different on the leese side and the wind side of the mountains. If an augmenting circulation over the north-western Europe brings increasing south western wind there will be an increase of the precipitation over western Norway and decreasing precipitation over eastern Norway. On the other hand, if the increasing circulation causes — as in the last period with rising temperatures — an additional airflow with an easterly component the variations in the precipitation are inverse. There was increasing precipitation on the western and a vast area with decreasing precipitation on the western and northern sides of the central mountain ridge.

It seems also evident that an increasing circulation will have different influence on the temperature if it has an easterly or a westerly component, because we in the first case get air of continental and in the second case of maritime character.

When we know how different these details in the additional airflows are in the different cases it is evident that there will occur great variations in the relationship between the variations of the meteorological elements and the variations in the general circulation as measured for instance by the difference of atmospheric pressure between the Azores-High and the Icelandic Low.

From these considerations it seems justified to work further with the ideas of Nansen and Helland-Hansen as a good working hypothesis.

As a preliminary comparison between the climatic fluctuations and the conditions on the sun we have computed the secular variations in the relative number of sunspots. After a smoothing over 30 years the curves for the number of sunspots still is dominated by the 11-years period, but through a smoothing over 33 years we got curves where these periods do no more hide the secular variations. This computation show a gradual rise of the number of sunspots from a minimum in the period 1874—1916 so that it in the period 1911—43 was 9.8 units higher than in the minimum period mentioned. As it is supposed that the heat radiation from the sun augments with the number of sunspots, we should have had an increasing heat radiation from the time when the present rise of the temperature began. These studies will be the subject of a later paper.

Before we know more about the forces which determine the variations of the general circulation it is not advisable to say anything about the future climate variations. We know, that a complete change was initiated through the three cold winters 1940—42, but we do not know if the development will continue in that direction or if it is only of temporary character.

Important studies of the causes of the climatic variations have in later years been performed by Simpson, Willet and others, but no generally adopted explanation have been given. All agree, howe-

ver, in the importance of the geographical feature on the earth and the variations in the radiation from the sun absorbed by the atmosphere must play for the phenomenon.

It is to be hoped that both meteorologists and astronomers will continue to study these problems that can give the explanation not only of the secular variations in the climate that we have now, but also of the prehistoric great climatic changes. And what is still more important, they may give the key for longrange forecasts.

Table 1.

Atmospheric Pressure.

Departures in millibars from the mean values for the period 1901—30, after 30 years smoothing.

Røros:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.01	0.36	0.23	0.17	—0.73
1911—40	0.08	0.82	0.28	0.14	—0.93
12—41	0.13	0.89	0.32	0.05	—0.65
13—42	0.20	1.01	0.45	0.07	—0.76
14—43	0.16	0.86	0.48	—0.00	—0.75
15—44	0.17	0.98	0.59	—0.07	—0.83
1916—45	0.21	1.14	0.64	—0.05	—0.85
17—46	0.33	1.28	0.75	—0.04	—0.75
18—47	0.44	1.54	0.73	0.02	—0.47
19—48	0.43	1.59	0.55	0.05	—0.48
20—49	0.45	1.53	0.55	0.20	—0.36
1921—50	0.37	1.60	0.57	0.19	—0.72

Ferdev:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.11	0.25	0.36	0.37	—0.63
1911—40	0.23	0.78	0.42	0.41	—0.78
12—41	0.29	0.89	0.47	0.29	—0.46
13—42	0.41	1.05	0.67	0.37	—0.51
14—43	0.41	0.92	0.76	0.34	—0.50
15—44	0.41	1.05	0.86	0.28	—0.64
1916—45	0.45	1.27	0.87	0.27	—0.62
17—46	0.58	1.41	1.01	0.32	—0.53
18—47	0.69	1.70	0.99	0.36	—0.23
19—48	0.70	1.67	0.85	0.38	—0.19
20—49	0.75	1.74	0.90	0.54	—0.09
1921—50	0.65	1.78	0.92	0.54	—0.48

Dombås:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.21	0.57	0.39	0.27	—0.58
1911—40	0.29	1.06	0.42	0.26	—0.76
12—41	0.35	1.14	0.45	0.16	—0.46
13—42	0.44	1.31	0.61	0.20	—0.55
14—43	0.42	1.19	0.55	0.13	—0.53
15—44	0.42	1.32	0.77	0.05	—0.63
1916—45	0.46	1.49	0.81	0.05	—0.64
17—46	0.57	1.63	0.93	0.04	—0.55
18—47	0.66	1.87	0.89	0.09	—0.28
19—48	0.64	1.88	0.71	0.08	—0.29
20—49	0.65	1.84	0.70	0.23	—0.20
1921—50	0.56	1.91	0.74	0.20	—0.57

Oksoy:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.04	0.13	0.41	0.30	—0.60
1911—40	0.15	0.65	0.44	0.36	—0.76
12—41	0.18	0.69	0.46	0.21	—0.48
13—42	0.30	0.87	0.64	0.31	—0.51
14—43	0.31	0.75	0.77	0.25	—0.50
15—44	0.31	0.90	0.88	0.18	—0.64
1916—45	0.37	1.16	0.89	0.15	—0.63
17—46	0.50	1.30	1.06	0.19	—0.53
18—47	0.58	1.54	1.04	0.23	—0.28
19—48	0.57	1.43	0.91	0.21	—0.24
20—49	0.60	1.55	0.94	0.34	—0.21
1921—50	0.47	1.55	0.94	0.30	—0.62

Oslo:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.07	0.37	0.42	0.33	—0.49
1911—40	0.18	0.91	0.48	0.33	—0.66
12—41	0.25	1.02	0.53	0.22	—0.33
13—42	0.36	1.18	0.79	0.29	—0.39
14—43	0.36	1.06	0.87	0.25	—0.35
15—44	0.37	1.19	0.97	0.19	—0.47
1916—45	0.41	1.40	0.98	0.19	—0.23
17—46	0.59	1.54	1.10	0.23	—0.33
18—47	0.70	1.84	1.10	0.27	—0.04
19—48	0.70	1.83	0.93	0.27	—0.03
20—49	0.72	1.84	0.95	0.42	—0.07
1921—50	0.62	1.89	1.11	0.41	—0.33

Skudenenes:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.10	0.14	0.53	0.17	—0.62
1911—40	0.21	0.70	0.56	0.25	—0.81
12—41	0.24	0.73	0.59	0.10	—0.53
13—42	0.35	0.94	0.74	0.20	—0.58
14—43	0.34	0.80	0.88	0.11	—0.58
15—44	0.35	0.97	1.02	0.01	—0.75
1916—45	0.40	1.25	1.03	—0.01	—0.76
17—46	0.53	1.39	1.23	—0.02	—0.66
18—47	0.60	1.59	1.20	0.05	—0.39
19—48	0.59	1.46	1.08	0.01	—0.31
20—49	0.63	1.59	1.10	0.16	—0.30
1921—50	0.53	2.03	1.17	0.11	—0.69

Table 1.

Atmospheric Pressure.

Departures in millibars from the mean values for the period 1901—30, after 30 years smoothing.

Ullensvang:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.10	0.20	0.44	0.14	—0.70
1911—40	0.22	0.78	0.49	0.20	—0.89
12—41	0.26	0.85	0.52	0.05	—0.59
13—42	0.39	1.06	0.71	0.15	—0.65
14—43	0.39	0.93	0.83	0.08	—0.62
15—44	0.48	1.15	1.06	0.02	—0.69
1916—45	0.60	1.48	1.14	0.08	—0.61
17—46	0.82	1.72	1.40	0.16	—0.43
18—47	0.95	2.04	1.45	0.22	—0.15
19—48	0.92	1.96	1.31	0.17	—0.11
20—49	0.93	1.99	1.31	0.30	—0.09
1921—50	0.80	2.01	1.34	0.23	—0.50

Brønnøysund:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.08	0.58	0.26	0.15	—0.69
1911—40	0.17	1.15	0.34	0.09	—0.90
12—41	0.28	1.34	0.42	0.04	—0.57
13—42	0.38	1.55	0.59	0.05	—0.71
14—43	0.34	1.42	0.59	—0.02	—0.65
15—44	0.38	1.54	0.73	—0.08	—0.70
1916—45	0.39	1.67	0.80	—0.06	—0.79
17—46	0.49	1.92	0.85	—0.07	—0.69
18—47	0.61	2.22	0.81	0.00	—0.39
19—48	0.58	2.32	0.57	0.01	—0.44
20—49	0.55	2.15	0.52	0.18	—0.36
1921—50					

Bergen:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1920—39	—0.01	0.24	0.50	0.09	—0.70
1911—40	0.11	0.82	0.53	0.17	—0.90
12—41	0.15	0.87	0.57	0.03	—0.60
13—42	0.27	1.09	0.75	0.13	—0.66
14—43	0.26	0.96	0.87	0.05	—0.65
15—44	0.32	1.15	1.02	—0.03	—0.81
1916—45	0.36	1.42	1.03	—0.06	—0.84
17—46	0.50	1.58	1.23	—0.07	—0.71
18—47	0.60	1.79	1.20	0.01	—0.43
19—48	0.59	1.73	1.08	—0.02	—0.36
20—49	0.62	1.81	1.10	0.13	—0.33
1921—50	0.52	1.86	1.18	0.08	—0.72

Røst:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.40	1.04	0.65	0.26	—0.49
1911—40	0.52	1.66	0.76	0.19	—0.66
12—41	0.68	1.88	0.90	0.20	—0.29
13—42	0.73	2.07	1.05	0.17	—0.47
14—43	0.71	1.95	1.03	0.12	—0.37
15—44	0.78	2.06	1.25	0.08	—0.36
1916—45	0.80	2.16	1.36	0.14	—0.46
17—46	0.88	2.29	1.37	0.14	—0.37
18—47	1.03	2.62	1.29	0.22	—0.06
19—48	1.00	2.79	1.05	0.24	—0.10
20—49	0.95	2.54	0.98	0.41	—0.02
1921—50	0.94	2.73	1.03	0.44	—0.16

Lærdal:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.14	0.35	0.47	0.23	—0.64
1911—40	0.27	0.95	0.53	0.29	—0.83
12—41	0.33	1.06	0.60	0.17	—0.53
13—42	0.45	1.25	0.79	0.26	—0.61
14—43	0.44	1.12	0.87	0.19	—0.59
15—44	0.44	1.25	0.94	0.11	—0.72
1916—45	0.47	1.47	0.95	0.08	—0.75
17—46	0.59	1.62	1.11	0.07	—0.65
18—47	0.58	1.85	0.89	0.13	—0.38
19—48	0.59	2.06	0.72	0.09	—0.35
20—49	0.54	2.05	0.72	0.22	—0.31
1921—50	0.46	2.13	0.77	0.17	—0.72

Tromsø:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.07	0.65	0.12	—0.03	—0.64
1911—40	0.11	1.14	0.16	—0.16	—0.85
12—41	0.24	1.32	0.27	—0.17	—0.56
13—42	0.24	1.43	0.34	—0.26	—0.70
14—43	0.18	1.28	0.25	—0.34	—0.63
15—44	0.23	1.31	0.41	—0.40	—0.61
1916—45	0.21	1.34	0.51	—0.36	—0.76
17—46	0.25	1.43	0.42	—0.37	—0.69
18—47	0.38	1.76	0.38	—0.34	—0.46
19—48	0.30	1.92	0.14	—0.38	—0.58
20—49	0.22	1.54	0.05	—0.24	—0.51
1921—50	0.23	1.72	0.05	—0.18	—0.72

Table I
Atmospheric Pressure.

Departures in millibars from the mean values for the period 1901—30, after 30 years smoothing.

Vardø:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.28	0.98	0.01	0.26	-0.18
1911—40	0.28	1.31	0.02	0.14	-0.37
12—41	0.37	1.42	0.09	0.17	-0.17
13—42	0.33	1.51	0.08	0.09	-0.35
14—43	0.24	1.32	-0.10	0.01	-0.29
15—44	0.28	1.33	0.01	-0.04	-0.20
1916—45	0.22	1.25	0.09	-0.06	-0.41
17—46	0.19	1.31	-0.13	-0.07	-0.34
18—47	0.31	1.64	-0.24	-0.06	-0.30
19—48	0.15	1.75	-0.45	-0.16	-0.53
20—49	0.05	1.26	-0.51	-0.07	-0.48
1921—50	0.05	1.39	-0.59	0.04	-0.56

Karasjok:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.49	1.32	0.22	0.39	-0.12
1911—40	0.56	1.79	0.28	0.31	-0.26
12—41	0.71	1.98	0.41	0.37	0.04
13—42	0.74	2.14	0.49	0.32	-0.07
14—43	0.70	2.03	0.38	0.27	0.02
15—44	0.75	2.08	0.52	0.24	0.10
1916—45	0.71	1.90	0.58	0.28	-0.06
17—46	0.72	2.10	0.42	0.29	0.04
18—47	0.85	2.44	0.36	0.32	0.20
19—48	0.71	2.55	0.12	0.24	-0.01
20—49	0.65	2.09	0.03	0.40	0.11
1921—50	0.67	2.24	-0.01	0.51	-0.02

Table 1.
Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 30 years smoothing.

Røros:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.42	0.73	0.26	0.52	0.31
1911—40	0.36	0.54	0.20	0.52	0.34
12—41	0.29	0.30	0.13	0.58	0.37
13—42	0.25	0.11	0.09	0.53	0.44
14—43	0.30	0.19	0.11	0.55	0.45
15—44	0.30	0.24	0.07	0.52	0.51
1916—45	0.40	0.24	0.18	0.63	0.59
17—46	0.43	0.29	0.25	0.65	0.64
18—47	0.44	0.28	0.34	0.68	0.63
19—48	0.48	0.29	0.42	0.82	0.61
20—49	0.56	0.44	0.46	0.82	0.76
1921—50	0.55	0.46	0.40	0.88	0.76

Oslo:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.30	0.41	0.27	0.23	0.23
1911—40	0.25	0.27	0.21	0.23	0.22
12—41	0.17	0.07	0.14	0.23	0.22
13—42	0.13	-0.06	0.06	0.20	0.28
14—43	0.14	-0.05	0.09	0.20	0.28
15—44	0.12	-0.02	0.06	0.14	0.29
1916—45	0.20	-0.01	0.15	0.22	0.36
17—46	0.22	0.03	0.21	0.25	0.39
18—47	0.25	0.05	0.28	0.32	0.37
19—48	0.29	0.07	0.32	0.33	0.36
20—49	0.34	0.19	0.35	0.36	0.47
1921—50	0.34	0.27	0.37	0.38	0.47

Dombås:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.28	0.45	0.23	0.36	0.21
1911—40	0.22	0.32	0.19	0.32	0.23
12—41	0.17	0.18	0.12	0.35	0.26
13—42	0.13	-0.02	0.08	0.28	0.33
14—43	0.14	-0.01	0.10	0.27	0.29
15—44	0.12	0.00	0.07	0.22	0.32
1916—45	0.20	-0.01	0.18	0.31	0.40
17—46	0.22	0.01	0.23	0.32	0.44
18—47	0.25	-0.01	0.29	0.37	0.42
19—48	0.28	-0.05	0.33	0.40	0.41
20—49	0.35	0.10	0.35	0.41	0.55
1921—50	0.33	0.08	0.43	0.44	0.56

Ås:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.22	0.29	0.24	0.29	0.24
1911—40	0.16	0.12	0.16	0.29	0.23
12—41	0.08	-0.09	0.06	0.30	0.24
13—42	0.03	-0.26	-0.05	0.27	0.30
14—43	0.03	-0.28	-0.03	0.27	0.30
15—44	0.02	-0.27	-0.06	0.22	0.32
1916—45	0.10	-0.27	0.02	0.30	0.38
17—46	0.10	-0.25	0.07	0.31	0.39
18—47	0.13	-0.21	0.11	0.38	0.37
19—48	0.13	-0.27	0.14	0.40	0.33
20—49	0.22	-0.11	0.19	0.45	0.43
1921—50	0.22	-0.09	0.20	0.59	0.43

Table 1.

Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 30 years smoothing.

Ferder:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.24	0.23	0.22	0.27	0.26
1911—40	0.19	0.10	0.15	0.26	0.25
12—41	0.11	-0.08	0.05	0.27	0.24
13—42	0.07	-0.19	-0.06	0.22	0.31
14—43	0.08	-0.19	-0.03	0.24	0.31
15—44	0.07	-0.17	-0.05	0.19	0.33
1916—45	0.15	-0.15	0.03	0.26	0.43
17—46	0.17	-0.11	0.09	0.28	0.45
18—47	0.19	-0.15	0.08	0.33	0.44
19—48	0.22	-0.18	0.13	0.36	0.44
20—49	0.31	-0.03	0.15	0.40	0.57
1921—50	0.32	0.00	0.19	0.43	0.59

Mandal:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.24	0.17	0.23	0.33	0.20
1911—40	0.19	0.05	0.17	0.33	0.19
12—41	0.13	-0.15	0.09	0.34	0.19
13—42	0.08	-0.26	0.01	0.31	0.23
14—43	0.08	-0.26	0.03	0.31	0.22
15—44	0.07	-0.28	0.01	0.27	0.23
1916—45	0.14	-0.29	0.07	0.32	0.33
17—46	0.14	-0.26	0.13	0.32	0.33
18—47	0.15	-0.31	0.18	0.37	0.32
19—48	0.13	-0.34	0.21	0.40	0.31
20—49	0.21	-0.20	0.23	0.41	0.43
1921—50	0.19	-0.19	0.22	0.41	0.42

Torungen:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.18	0.23	0.14	0.20	0.21
1911—40	0.11	0.11	0.05	0.17	0.19
12—41	0.02	-0.08	-0.06	0.15	0.18
13—42	-0.04	-0.21	-0.18	0.10	0.22
14—43	-0.05	-0.22	-0.17	0.10	0.21
15—44	-0.07	-0.22	-0.20	0.04	0.21
1916—45	-0.01	-0.23	-0.14	0.07	0.30
17—46	0.00	-0.19	-0.08	0.07	0.30
18—47	0.01	-0.22	-0.05	0.10	0.30
19—48	0.02	-0.24	-0.02	0.11	0.29
20—49	0.09	-0.09	-0.03	0.12	0.41
1921—50	0.09	-0.05	-0.02	0.13	0.42

Skudenes:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.16	0.18	0.15	0.45	0.09
1911—40	0.15	0.08	0.14	0.43	0.08
12—41	0.11	-0.05	0.08	0.44	0.08
13—42	0.07	-0.17	0.04	0.40	0.10
14—43	0.08	-0.16	0.06	0.43	0.09
15—44	0.06	-0.19	0.05	0.38	0.08
1916—45	0.12	-0.22	0.13	0.45	0.16
17—46	0.14	-0.20	0.16	0.51	0.19
18—47	0.16	-0.23	0.21	0.52	0.20
19—48	0.18	-0.22	0.23	0.55	0.20
20—49	0.25	-0.12	0.24	0.57	0.35
1921—50	0.25	-0.08	0.25	0.60	0.35

Øksøy:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.21	0.12	0.16	0.30	0.19
1911—40	0.16	0.00	0.10	0.28	0.18
12—41	0.10	-0.18	0.01	0.28	0.17
13—42	0.05	-0.30	-0.08	0.25	0.22
14—43	0.06	-0.30	-0.06	0.25	0.22
15—44	0.05	-0.30	-0.08	0.22	0.24
1916—45	0.12	-0.30	-0.02	0.27	0.31
17—46	0.14	-0.27	0.05	0.29	0.36
18—47	0.15	-0.31	0.10	0.32	0.37
19—48	0.17	-0.25	0.13	0.36	0.37
20—49	0.26	-0.11	0.15	0.38	0.50
1921—50	0.25	-0.07	0.16	0.39	0.51

Utsira:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.21	0.16	0.14	0.39	0.19
1911—40	0.17	0.09	0.12	0.36	0.18
12—41	0.13	-0.01	0.05	0.35	0.19
13—42	0.09	-0.10	0.00	0.30	0.22
14—43	0.11	-0.08	0.02	0.32	0.21
15—44	0.10	-0.06	0.02	0.28	0.23
1916—45	0.17	-0.07	0.10	0.34	0.32
17—46	0.19	-0.03	0.13	0.39	0.35
18—47	0.21	-0.07	0.18	0.42	0.36
19—48	0.22	-0.06	0.20	0.44	0.36
20—49	0.29	0.05	0.20	0.44	0.49
1921—50	0.30	0.09	0.20	0.49	0.49

Table 1.

Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 30 years smoothing.

Ullensvang:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.16	0.18	0.23	0.25	0.03
1911—40	0.12	0.06	0.20	0.21	0.03
12—41	0.09	-0.06	0.17	0.23	0.05
13—42	0.03	-0.21	0.10	0.17	0.08
14—43	0.00	-0.22	0.07	0.13	0.03
15—44	-0.02	-0.22	0.03	0.07	0.03
1916—45	0.04	-0.24	0.12	0.13	0.10
17—46	0.03	-0.23	0.16	0.11	0.09
18—47	0.04	-0.26	0.21	0.15	0.08
19—48	0.02	-0.31	0.20	0.20	0.07
20—49	0.07	-0.19	0.18	0.22	0.19
1921—50	0.07	-0.17	0.19	0.24	0.19

Lærdal:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.20	0.33	0.11	0.21	0.10
1911—40	0.14	0.17	0.07	0.18	0.12
12—41	0.09	0.00	0.02	0.20	0.15
13—42	0.03	-0.18	-0.05	0.13	0.18
14—43	0.02	-0.18	-0.05	0.11	0.15
15—44	0.00	-0.18	-0.10	0.06	0.17
1916—45	0.06	-0.22	-0.02	0.12	0.27
17—46	0.04	-0.21	-0.01	0.10	0.24
18—47	0.04	-0.24	0.03	0.11	0.22
19—48	0.04	-0.26	0.04	0.12	0.20
20—49	0.06	-0.14	0.03	0.10	0.33
1921—50	0.08	-0.16	-0.02	0.10	0.37

Bergen:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.30	0.31	0.25	0.44	0.22
1911—40	0.27	0.24	0.24	0.39	0.23
12—41	0.24	0.13	0.21	0.41	0.27
13—42	0.21	0.04	0.17	0.37	0.30
14—43	0.22	0.06	0.19	0.38	0.29
15—44	0.21	0.07	0.18	0.36	0.31
1916—45	0.09	0.06	0.28	0.44	0.41
17—46	0.31	0.09	0.34	0.48	0.43
18—47	0.35	0.10	0.40	0.52	0.45
19—48	0.37	0.12	0.42	0.56	0.45
20—49	0.45	0.22	0.43	0.60	0.62
1921—50	0.45	0.25	0.43	0.64	0.62

Ona:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.15	0.16	0.00	0.34	0.14
1911—40	0.12	0.09	-0.02	0.35	0.13
12—41	0.09	0.01	-0.07	0.34	0.15
13—42	0.05	-0.09	-0.12	0.28	0.18
14—43	0.06	-0.09	-0.13	0.31	0.17
15—44	0.03	-0.10	-0.15	0.26	0.17
1916—45	0.09	-0.11	-0.08	0.33	0.23
17—46	0.12	-0.09	-0.06	0.38	0.28
18—47	0.12	-0.10	-0.04	0.38	0.27
19—48	0.11	-0.10	-0.03	0.36	0.24
20—49	0.15	-0.03	-0.03	0.35	0.36
1921—50	0.14	-0.01	-0.05	0.38	0.34

Hellesøy:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.24	0.23	0.22	0.43	0.25
1911—40	0.22	0.18	0.22	0.40	0.24
12—41	0.19	0.09	0.17	0.40	0.27
13—42	0.16	0.02	0.13	0.35	0.31
14—43	0.18	0.02	0.15	0.37	0.30
15—44	0.17	0.03	0.15	0.33	0.31
1916—45	0.23	0.03	0.24	0.39	0.39
17—46	0.27	0.06	0.28	0.44	0.44
18—47	0.29	0.05	0.32	0.46	0.44
19—48	0.30	0.06	0.35	0.48	0.43
20—49	0.36	0.17	0.35	0.48	0.57
1921—50	0.36	0.20	0.35	0.52	0.56

Trondheim:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.47	0.62	0.23	0.52	0.41
1911—40	0.41	0.48	0.19	0.49	0.44
12—41	0.38	0.35	0.13	0.52	0.47
13—42	0.33	0.23	0.08	0.45	0.52
14—43	0.35	0.23	0.07	0.46	0.53
15—44					
1916—45					
17—46					
18—47					
19—48					
20—49					
1921—50					

Table 1.

Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 30 years smoothing.

Brønnøysund:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.32	0.20	0.18	0.54	0.29
1911—40	0.29	0.12	0.13	0.52	0.33
12—41	0.26	0.04	0.08	0.57	0.34
13—42	0.23	—0.06	0.02	0.51	0.39
14—43	0.25	—0.07	0.02	0.54	0.40
15—44	0.25	—0.03	0.00	0.49	0.43
1916—45	0.33	0.02	0.10	0.56	0.50
17—46	0.36	0.06	0.11	0.58	0.59
18—47	0.37	0.08	0.15	0.58	0.58
19—48	0.38	0.10	0.18	0.54	0.56
20—49	0.44	0.20	0.20	0.53	0.69
1921—50	0.43	0.20	0.15	0.62	0.68

Tromsø:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.36	0.27	0.20	0.62	0.38
1911—40	0.36	0.21	0.17	0.65	0.45
12—41	0.33	0.14	0.12	0.70	0.45
13—42	0.35	0.14	0.08	0.73	0.47
14—43	0.37	0.13	0.09	0.76	0.51
15—44	0.39	0.22	0.07	0.75	0.56
1916—45	0.45	0.29	0.15	0.78	0.59
17—46	0.50	0.33	0.21	0.81	0.66
18—47	0.55	0.40	0.30	0.87	0.68
19—48	0.56	0.44	0.32	0.86	0.66
20—49	0.61	0.53	0.37	0.81	0.75
1921—50	0.60	0.55	0.34	0.87	0.75

Bodø:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.43	0.31	0.27	0.54	0.48
1911—40	0.42	0.26	0.23	0.53	0.54
12—41	0.40	0.19	0.20	0.59	0.55
13—42	0.41	0.14	0.16	0.56	0.60
14—43	0.44	0.15	0.16	0.59	0.64
15—44	0.45	0.22	0.13	0.57	0.69
1916—45	0.55	0.30	0.25	0.65	0.75
17—46	0.59	0.34	0.27	0.66	0.82
18—47	0.60	0.39	0.32	0.70	0.82
19—48	0.62	0.41	0.34	0.65	0.77
20—49	0.67	0.51	0.34	0.63	0.88
1921—50	0.65	0.52	0.28	0.70	0.86

Alta:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.36	0.37	0.08	0.50	0.48
1911—40	0.36	0.28	0.02	0.55	0.54
12—41	0.31	0.21	—0.06	0.62	0.52
13—42	0.34	0.19	—0.10	0.66	0.55
14—43	0.37	0.20	—0.10	0.68	0.59
15—44					
1916—45					
17—46					
18—47					
19—48					
20—49					
1921—50					

Andenes:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.35	0.36	0.17	0.44	0.44
1911—40	0.36	0.34	0.12	0.45	0.51
12—41	0.34	0.31	0.07	0.49	0.52
13—42	0.35	0.31	0.05	0.49	0.55
14—43	0.38	0.31	0.05	0.51	0.60
15—44	0.39	0.39	0.03	0.49	0.62
1916—45	0.46	0.45	0.13	0.52	0.67
17—46	0.51	0.51	0.18	0.57	0.76
18—47	0.56	0.60	0.25	0.60	0.79
19—48	0.59	0.67	0.31	0.58	0.78
20—49	0.64	0.76	0.35	0.55	0.87
1921—50	0.66	0.80	0.34	0.60	0.89

Vardø:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	0.33	0.37	0.14	0.37	0.43
1911—40	0.33	0.29	0.09	0.43	0.48
12—41	0.29	0.27	0.02	0.44	0.45
13—42	0.31	0.24	0.01	0.46	0.50
14—43	0.33	0.24	0.04	0.47	0.54
15—44					
1916—45					
17—46					
18—47					
19—48					
20—49					
1921—50					

Table 1

Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 30 years smoothing.

Karasjok:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.46	0.66	0.06	0.45	0.66
1911—40	0.42	0.39	0.02	0.51	0.69
12—41	0.36	0.31	-0.10	0.57	0.71
13—42	0.39	0.27	-0.11	0.60	0.73
14—43	0.45	0.28	-0.05	0.63	0.77
15—44	0.47	0.45	-0.08	0.61	0.80
1916—45	0.53	0.50	-0.01	0.65	0.80
17—46	0.58	0.57	0.07	0.69	0.81
18—47	0.65	0.71	0.17	0.75	0.87
19—48	0.66	0.76	0.20	0.75	0.82
20—49	0.74	0.92	0.24	0.66	0.88
1921—50	0.70	0.90	0.16	0.67	0.98

Sørvaranger:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.43	0.65	0.20	0.46	0.62
1911—40	0.41	0.50	0.14	0.53	0.68
12—41	0.35	0.45	0.02	0.56	0.65
13—42	0.36	0.35	-0.00	0.59	0.69
14—43	0.40	0.34	0.06	0.60	0.72

Table 1.

Amount of Precipitation.

Departures in per cent of the mean values of the annual precipitation of the period 1901—30 from the mean values for the period 1901—30, after 30 years smoothing.

Dombås:

Period	Year	Winter	Spring	Summer	Autumn
1902—31	-0.31	-0.28	-0.20	0.35	-0.18
03—32	-0.35	-0.23	-0.22	0.08	0.02
04—33	-1.58	-0.47	-1.10	-0.12	0.11
05—34	1.39	0.48	-0.80	1.01	0.70
1906—35	1.41	0.09	-0.93	1.17	1.08
07—36	-0.08	-0.68	-1.77	1.47	0.90
08—37	-0.05	-1.11	-1.24	1.33	0.97
09—38	1.36	-1.72	-0.72	1.97	1.83
10—39	1.36	-1.53	-0.48	1.89	1.48
1911—40	1.16	-1.79	-0.79	2.30	1.44
12—41	1.33	-2.60	-0.87	3.49	1.31
13—42	0.14	-3.50	-1.43	3.15	1.92
14—43	1.52	-2.47	-1.14	3.11	2.02
15—44	3.16	-2.34	-0.86	4.21	2.15
1916—45	3.33	-2.28	-0.37	3.63	2.35
17—46	3.59	-1.98	-0.47	3.47	2.57
18—47	3.05	-2.30	-0.62	3.31	2.66
19—48	2.84	-2.83	-0.18	2.94	2.91
20—49	3.77	-2.02	0.29	2.74	2.76
1921—50	3.97	-1.80	-0.12	2.87	3.02

Biri:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	3.20	2.46	-1.54	0.38	1.90
1911—40	1.52	1.65	-2.26	-0.01	2.14
12—41	1.97	1.29	-2.58	1.26	2.00
13—42	1.11	0.88	-2.90	1.01	2.12
14—43	1.25	0.73	-3.00	1.20	2.32
15—44	2.34	0.37	-3.50	2.19	3.28
1916—45	1.48	-0.07	-3.36	1.67	3.24
17—46	1.09	0.05	-3.71	1.86	2.89
18—47	0.95	0.13	-3.56	1.59	2.79
19—48	1.39	0.40	-3.19	1.70	2.48
20—49	1.59	0.08	-2.93	1.65	2.79
1921—50	2.82	0.22	-3.15	2.45	3.30

Ås:

Period	Year	Winter	Spring	Summer	Autumn
1910—39	0.20	1.97	-1.81	-1.65	1.69
1911—40	-0.88	0.94	-2.38	-1.38	1.94
12—41	-1.49	0.37	-2.72	-0.29	1.15
13—42	-1.09	0.47	-2.83	-0.49	1.76
14—43	-1.05	0.48	-3.13	-0.44	2.04
15—44	0.00	0.39	-3.64	0.22	3.03
1916—45	-1.23	-0.29	-3.34	-0.48	2.88
17—46	-0.85	-0.48	-3.66	0.12	3.17
18—47	-2.07	-0.56	-3.55	-0.93	2.97
19—48	-1.04	-0.27	-2.91	-0.73	2.87
20—49	-0.36	-0.25	-2.73	-0.75	3.36
1921—50	-0.23	-0.26	-3.37	-0.55	3.95

Table 1.

Amount of Precipitation.

Departures in per cent of the mean values of the annual precipitation of the period 1901—30 from the mean values for the period 1901—30, after 30 years smoothing.

Mandal:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	1.24	2.16	-2.61	-0.40	2.09
1911—40	0.54	1.61	-2.63	-1.12	2.68
12—41	0.03	1.06	-2.56	-0.59	2.12
13—42	-0.35	0.33	-2.69	-0.66	2.67
14—43	0.59	0.70	-2.78	-0.37	3.04
15—44	0.05	0.04	-3.22	-0.15	3.38
1916—45	0.57	0.11	-2.83	-0.32	3.61
17—46	0.40	-0.28	-3.14	0.21	3.61
18—47	-0.44	-0.45	-3.25	-0.22	3.48
19—48	0.44	-0.34	-3.12	0.20	3.70
20—49	1.19	-0.31	-2.97	0.13	4.34
1921—50	0.71	-0.20	-3.31	0.55	5.09

Bergen:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39					
1911—40					
12—41	0.98	-1.46	-0.91	1.33	2.02
13—42	1.72	-1.40	-1.08	1.60	2.60
14—43	2.55	-1.30	-0.63	1.76	2.72
15—44	2.13	-1.76	-0.77	1.96	2.70
1916—45	2.60	-1.50	-0.63	1.77	2.96
17—46	3.31	-1.60	-0.34	2.22	3.03
18—47	2.34	-1.87	-0.24	1.95	2.50
19—48	1.97	-2.81	0.14	1.58	3.06
20—49	3.21	-1.69	0.32	1.64	2.94
1921—50	3.48	-1.85	-0.07	1.84	3.56

Skudenes:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	-0.95	-0.78	-1.62	0.46	0.99
1911—40	-1.90	-1.45	-1.98	0.23	1.30
12—41	-2.75	-2.01	-2.13	0.76	0.63
13—42	-2.74	-2.33	-2.07	0.56	1.10
14—43	-1.16	-1.98	-1.79	1.15	1.46
15—44					
1916—45					
17—46					
18—47					
19—48					
20—49					
1921—50					

Gaular:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1910—39	-2.95	-2.13	-0.82	-0.14	0.14
1911—40	-3.11	-2.73	1.08	0.13	0.57
12—41	-4.57	-3.50	-1.36	0.12	0.17
13—42	-3.25	-3.22	-1.54	0.44	1.07
14—43	-2.11	-2.76	-0.87	0.51	1.01
15—44	-3.10	-3.19	-1.06	0.51	0.64
1916—45	-2.36	-2.92	-0.74	0.35	0.95
17—46	-1.70	-3.04	-0.28	0.84	0.78
18—47	-1.82	-3.11	0.05	0.54	0.70
19—48	-1.99	-3.96	0.49	0.24	1.24
20—49	-0.28	-2.56	0.91	0.20	1.17
1921—50	0.25	-2.78	0.77	0.41	1.85

Table 2.

Atmospheric Pressure.

Departures in millibars from the mean values for the period 1901—30, after 10 years smoothing.

Røros:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.50	0.74	1.09	0.74	-0.83
1931—40	0.70	1.47	1.32	0.79	-0.74
32—41	1.03	1.77	1.45	1.11	-0.17
33—42	1.15	1.94	1.86	0.99	0.05
34—43	0.75	1.17	1.52	0.97	-0.42
35—44	0.76	0.89	1.70	0.92	-0.36
1936—45	1.05	1.21	1.39	0.90	0.63
37—46	1.26	1.61	1.32	0.80	0.83
38—47	1.36	2.91	0.99	1.04	0.82
39—48	1.54	2.83	1.46	1.05	0.94
40—49	1.41	2.74	1.22	1.11	0.96
1941—50	1.18	1.92	0.87	1.20	0.95

Ferder:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.70	0.73	1.04	1.23	-0.71
1931—40	0.87	1.43	1.26	1.24	-0.66
32—41	1.16	1.79	1.37	1.45	-0.10
33—42	1.31	2.20	1.92	1.37	0.14
34—43	0.94	1.30	1.73	1.28	-0.22
35—44	0.86	0.84	1.89	1.26	-0.39
1936—45	1.11	1.14	1.56	1.07	0.64
37—46	1.28	1.60	1.59	0.93	0.72
38—47	1.46	2.89	1.43	1.10	0.78
39—48	1.61	2.67	1.82	0.98	1.09
40—49	1.56	2.88	1.73	1.04	1.11
1941—50	1.31	1.96	1.43	1.12	1.10

Dombås:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.81	1.24	1.26	0.85	-0.59
1931—40	0.95	1.92	1.42	0.84	-0.57
32—41	1.26	2.25	1.51	1.14	-0.01
33—42	1.35	2.40	1.92	0.99	0.18
34—43	0.90	1.59	1.57	0.89	-0.34
35—44	0.83	1.23	1.75	0.78	-0.42
1936—45	1.07	1.42	1.40	0.69	0.58
37—46	1.21	1.80	1.32	0.50	0.70
38—47	1.29	3.06	0.97	0.70	0.63
39—48	1.41	2.90	1.36	0.63	0.79
40—49	1.26	2.85	1.11	0.69	0.75
1941—50	1.01	1.97	0.82	0.75	0.70

Okseøy:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.53	0.86	0.93	1.00	-0.80
1931—40	0.73	1.50	1.16	1.07	-0.73
32—41	1.00	1.90	1.30	1.23	-0.25
33—42	1.14	1.80	1.86	1.16	0.07
34—43	0.86	1.03	1.83	1.07	-0.23
35—44	0.81	0.60	1.46	1.04	-0.45
1936—45	1.11	0.93	1.93	0.83	0.63
37—46	1.28	1.54	2.05	0.68	0.68
38—47	1.50	2.75	2.02	0.85	0.69
39—48	1.51	2.41	2.15	0.59	0.96
40—49	1.40	2.72	2.00	0.62	0.81
1941—50	1.05	1.69	1.67	0.55	0.72

Oslo:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.72	1.10	1.36	1.08	-0.25
1931—40	0.91	1.88	1.60	1.07	-0.19
32—41	1.23	2.22	1.70	1.32	0.40
33—42	1.42	2.40	2.41	1.26	0.67
34—43	1.04	1.53	2.19	1.27	0.31
35—44	1.00	1.01	2.35	1.26	0.21
1936—45	1.29	1.20	2.02	1.13	1.25
37—46	1.58	1.34	1.99	1.02	1.40
38—48	1.70	1.44	1.50	1.17	1.39
39—48	1.81	1.60	1.89	1.02	1.60
40—49	1.67	1.52	1.67	1.00	1.16
1941—50	1.39	0.97	1.77	1.08	1.13

Skudenes:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.67	0.87	1.28	0.77	-0.82
1931—40	0.88	1.76	1.47	0.92	-0.81
32—41	1.09	2.18	1.59	1.03	-0.40
33—42	1.12	1.91	2.06	0.85	-0.10
34—43	0.74	1.02	1.91	0.72	-0.56
35—44	0.66	0.98	2.33	0.53	-0.86
1936—45	0.90	0.79	2.07	0.29	0.31
37—46	0.97	1.33	2.11	0.01	0.25
38—47	1.20	2.60	2.02	0.20	0.21
39—48	1.27	2.25	2.13	0.05	0.65
40—49	1.22	2.67	1.99	0.26	0.49
1941—50	0.92	2.85	1.79	0.13	0.44

Table 2.

Atmospheric Pressure.

Departures in millibars from the mean values for the period 1901—30, after 10 years smoothing.

Ullensvang:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.60	0.91	1.20	0.63	-0.94
1931—40	0.77	1.77	1.37	0.70	-0.96
32—41	1.01	2.20	1.48	0.83	-0.51
33—42	1.11	2.08	2.04	0.69	-0.23
34—43	0.75	1.21	1.88	0.64	-0.68
35—44	0.96	0.97	2.48	0.61	-0.63
1936—45	1.47	1.37	2.42	0.66	0.78
37—46	1.84	2.14	2.67	0.66	1.05
38—47	2.13	3.71	2.72	0.86	1.00
39—48	2.23	3.44	2.95	0.68	1.36
40—49	2.11	3.66	2.76	0.80	1.22
1941—50	1.79	2.56	2.48	0.76	1.15

Brønnøysund:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.57	1.04	1.24	0.53	-0.98
1931—40	0.84	2.07	1.50	0.53	-0.83
32—41	1.28	2.47	1.65	0.95	-0.07
33—42	1.49	3.00	2.08	0.81	0.15
34—43	1.00	2.20	1.66	0.90	-0.34
35—44	1.05	1.92	1.90	0.85	-0.19
1936—45	1.33	2.29	1.46	0.83	0.77
37—46	1.52	2.85	1.30	0.78	0.97
38—47	1.55	4.40	0.84	0.99	0.90
39—48	1.70	4.30	1.30	1.06	0.89
40—49	1.45	3.87	0.88	1.12	0.85
1941—50					

Bergen:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.41	1.00	1.12	0.47	-1.05
1931—40	0.69	1.95	1.36	0.70	-0.98
32—41	1.00	2.20	1.57	0.92	-0.44
33—42	1.13	2.06	2.13	0.83	-0.09
34—43	0.79	1.24	2.02	0.79	-0.55
35—44	0.82	0.88	2.48	0.71	-0.69
1936—45	1.16	1.19	2.27	0.58	0.54
37—46	1.33	1.80	2.37	0.38	0.60
38—47	1.58	3.19	2.24	0.62	0.56
39—48	1.69	2.94	2.42	0.49	0.99
40—49	1.62	3.27	2.28	0.70	0.84
1941—50	1.29	2.20	2.06	0.57	0.73

Røst:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	1.16	1.64	2.31	0.84	-0.53
1931—40	1.45	2.75	2.56	0.77	-0.35
32—41	1.90	3.11	2.66	1.24	0.47
33—42	2.10	3.79	2.99	1.10	0.65
34—43	1.61	3.13	2.26	1.22	0.23
35—44	1.71	2.94	2.52	1.16	0.48
1936—45	1.96	3.31	2.07	1.23	1.30
37—46	2.14	3.33	1.80	1.27	1.55
38—47	2.08	4.85	1.06	1.44	1.48
39—48	2.21	4.84	1.49	1.54	1.39
40—49	1.84	4.10	0.90	1.51	1.27
1941—50	1.53	3.11	0.35	1.67	1.68

Lærdal:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.80	1.13	1.46	0.86	-0.73
1931—40	1.02	2.07	1.68	0.97	-0.71
32—41	1.33	2.59	1.83	1.17	-0.15
33—42	1.45	2.59	2.34	1.04	0.08
34—43	1.05	1.71	2.09	1.03	-0.43
35—44	0.60	1.31	2.23	0.93	-0.54
1936—45	0.80	1.55	1.87	0.77	0.60
37—46	0.90	2.02	1.84	0.87	0.62
38—47	0.97	3.39	1.09	0.70	0.47
39—48	1.09	3.83	1.32	0.50	0.76
40—49	0.90	3.90	1.05	0.59	0.57
1941—50	0.53	2.78	0.69	0.48	0.44

Tromsø:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.38	0.76	1.30	0.18	-0.95
1931—40	0.54	1.70	1.41	-0.04	-0.85
32—41	0.89	1.72	1.41	0.42	-0.19
33—42	1.13	2.58	1.56	0.24	0.10
34—43	0.59	1.95	0.67	0.26	-0.26
35—44	0.64	1.76	0.83	0.15	-0.07
1936—45	0.80	2.09	0.42	0.20	0.43
37—46	0.99	1.92	0.09	0.28	0.77
38—47	0.94	3.43	-0.51	0.42	0.70
39—48	1.03	3.46	-0.00	0.55	0.40
40—49	0.73	2.52	-0.45	0.55	0.42
1941—50	0.59	1.83	-0.96	0.88	0.54

Table 2. **Atmospheric Pressure.**

Departures in millibars from the mean values for the period 1901—30, after 10 years smoothing.

Vardø:

Period	Year	Win-ter	Spring	Sum-mer	Au-tumn
1930—39	0.70	1.14	1.05	0.69	-0.08
1931—40	0.70	1.80	0.95	0.28	0.07
32—41	0.88	1.23	0.77	0.74	0.55
33—42	1.13	2.34	0.77	0.59	0.82
34—43	0.55	1.56	-0.22	0.60	0.59
35—44	0.44	1.35	-0.25	0.32	0.56
1936—45	0.42	1.63	-0.53	0.23	0.40
33—46	0.44	1.16	-1.04	0.28	0.70
38—47	0.11	2.46	2.07	0.18	0.39
39—48	0.01	2.33	-1.50	0.27	-0.35
40—49	-0.18	1.19	-1.81	0.23	-0.26
1941—50	-0.09	0.89	-2.40	0.67	0.01

Karasjok:

Period	Year	Win-ter	Spring	Sum-mer	Au-tumn
1930—39	1.29	1.80	1.62	1.20	0.34
1931—40	1.46	2.71	1.73	0.99	0.60
32—41	1.83	2.43	1.79	1.57	1.26
33—42	2.21	3.66	1.96	1.52	1.64
34—43	1.70	3.05	1.14	1.56	1.36
35—44	1.19	2.29	0.71	0.95	1.01
1936—45	1.21	2.45	0.29	0.95	1.15
37—46	1.30	2.16	-0.16	0.96	1.55
38—47	1.04	3.50	-1.00	0.91	1.25
39—48	0.87	3.34	-0.59	0.93	0.51
40—49	0.58	2.14	-0.98	0.90	0.56
1941—50	0.50	1.63	-1.55	1.26	-0.24

Table 2. **Air Temperature.**

Departures in degrees Celsius from the mean values for the period 1901—30, after 10 years smoothing.

Røros:

Period	Year	Win-ter	Spring	Sum-mer	Au-tumn
1930—39	1.31	2.60	0.44	1.50	1.16
1931—40	0.99	1.62	0.18	1.36	1.19
32—41	0.91	1.17	0.18	1.60	1.07
33—42	0.71	0.12	0.21	1.60	1.23
34—43	0.78	-0.02	0.36	1.51	1.44
35—44	0.66	-0.23	0.20	1.49	1.39
1936—45	0.71	-0.39	0.52	1.60	1.28
37—46	0.71	-0.49	0.66	1.49	1.42
38—47	0.55	-0.82	0.46	1.39	1.26
39—48	0.41	-1.08	0.56	1.62	0.98
40—49	0.48	-0.98	0.70	1.44	1.15
1941—50	0.66	-0.32	0.85	1.51	1.11

Oslo:

Period	Year	Win-ter	Spring	Sum-mer	Au-tumn
1930—39	0.90	1.61	0.51	0.84	0.86
1931—40	0.69	0.89	0.36	0.84	0.78
32—41	0.62	0.39	0.39	1.08	0.72
33—42	0.41	-0.35	0.24	0.98	0.86
34—43	0.44	-0.37	0.44	0.78	0.91
35—44	0.32	-0.45	0.31	0.75	0.84
1936—45	0.33	-0.57	0.47	0.84	0.73
37—46	0.30	-0.57	0.53	0.71	0.84
38—47	0.26	-0.97	0.49	0.88	0.74
39—48	0.17	-1.13	0.54	0.86	0.52
40—49	0.29	-0.89	0.59	0.83	0.71
1941—50	0.42	-0.45	0.82	0.80	0.75

Dombås:

Period	Year	Win-ter	Spring	Sum-mer	Au-tumn
1930—39	0.90	1.74	0.31	1.09	0.85
1931—40	0.60	0.96	0.10	0.90	0.79
32—41	0.55	0.53	0.07	1.08	0.72
33—42	0.34	-0.32	0.06	0.99	0.88
34—43	0.34	-0.42	0.14	0.80	1.01
35—44	0.22	-0.65	-0.02	0.74	0.97
1936—45	0.28	-0.86	0.30	0.84	0.91
37—46	0.28	-0.88	0.42	0.76	1.01
38—47	0.25	-1.20	0.29	0.80	0.88
39—48	0.16	-1.46	0.41	0.78	0.62
40—49	0.26	-1.19	0.51	0.70	0.81
1941—50	0.39	-0.76	0.66	0.75	0.85

Ås:

Period	Year	Win-ter	Spring	Sum-mer	Au-tumn
1930—39	0.76	1.33	0.34	0.91	0.81
1931—40	0.52	0.56	0.15	0.91	0.72
32—41	0.46	0.08	0.18	1.12	0.67
33—42	0.22	-0.74	-0.01	1.01	0.82
34—43	0.26	-0.76	0.20	0.81	0.89
35—44	0.14	-0.85	0.06	0.77	0.81
1936—45	0.15	-1.00	0.24	0.84	0.69
37—46	0.13	-0.97	0.31	0.69	0.79
38—47	0.06	-1.36	0.26	0.84	0.66
39—48	-0.06	-1.65	0.25	0.83	0.42
40—49	0.09	-1.38	0.30	0.83	0.63
1941—50	0.24	-0.89	0.57	1.17	0.64

Table 2.

Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 10 years smoothing.

Ferdev:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.83	1.14	0.49	0.88	0.98
1931—40	0.61	0.54	0.29	0.81	0.86
32—41	0.53	0.14	0.24	1.03	0.80
33—42	0.29	-0.56	-0.05	0.89	0.91
34—43	0.33	-0.56	0.13	0.70	0.99
35—44	0.24	-0.56	0.01	0.69	0.87
1936—45	0.25	-0.72	0.15	0.74	0.83
37—46	0.22	-0.66	0.23	0.60	0.86
38—47	0.19	-1.06	0.02	0.70	0.78
39—48	0.11	-1.17	0.01	0.72	0.56
40—49	0.24	-0.88	0.03	0.72	0.72
1941—50	0.40	-0.46	0.33	0.72	0.81

Mandal:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.72	0.92	0.43	0.88	0.76
1931—40	0.55	0.39	0.28	0.92	0.67
32—41	0.51	-0.11	0.24	1.17	0.68
33—42	0.30	-0.79	0.08	1.05	0.78
34—43	0.32	-0.77	0.20	0.89	0.85
35—44	0.21	-0.89	0.13	0.86	0.75
1936—45	0.23	-1.09	0.25	0.88	0.75
37—46	0.18	-1.01	0.27	0.70	0.77
38—47	0.14	-1.38	0.28	0.81	0.69
39—48	-0.02	-1.52	0.30	0.82	0.50
40—49	0.06	-1.25	0.29	0.75	0.64
1941—50	0.12	-0.89	0.45	0.63	0.64

Torungen:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.56	1.03	0.09	0.61	0.70
1931—40	0.35	0.51	-0.11	0.54	0.59
32—41	0.27	0.08	-0.14	0.70	0.56
33—42	0.01	-0.63	-0.37	0.52	0.67
34—43	0.05	-0.59	-0.22	0.35	0.74
35—44	-0.04	-0.66	-0.28	0.30	0.66
1936—45	-0.01	-0.82	-0.12	0.36	0.67
37—46	-0.02	-0.76	-0.04	0.21	0.71
38—47	-0.06	-1.12	-0.02	0.27	0.65
39—48	-0.13	-1.22	-0.03	0.28	0.46
40—49	-0.01	-0.93	-0.03	0.27	0.65
1941—50	0.14	-0.52	0.24	0.27	0.73

Skudenes:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.68	0.73	0.39	1.22	0.59
1931—40	0.49	0.33	0.33	1.01	0.48
32—41	0.47	0.02	0.32	1.18	0.47
33—42	0.31	-0.45	0.16	1.08	0.55
34—43	0.30	-0.42	0.24	0.89	0.62
35—44	0.18	-0.55	0.20	0.83	0.49
1936—45	0.22	-0.78	0.33	0.94	0.51
37—46	0.22	-0.70	0.33	0.87	0.58
38—47	0.18	-0.98	0.27	0.93	0.55
39—48	0.17	-0.98	0.37	0.98	0.38
40—49	0.23	-0.80	0.36	0.81	0.59
1941—50	0.38	-0.47	0.44	0.95	0.71

Oksoy:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.65	0.83	0.26	0.78	0.76
1931—40	0.47	0.33	0.09	0.75	0.66
32—41	0.42	-0.08	0.05	0.94	0.65
33—42	0.19	-0.76	-0.15	0.79	0.76
34—43	0.23	-0.70	-0.02	0.61	0.83
35—44	0.14	-0.75	-0.08	0.58	0.75
1936—45	0.19	-0.93	0.06	0.68	0.78
37—46	0.20	-0.84	0.16	0.56	0.83
38—47	0.18	-1.19	0.20	0.65	0.78
39—48	0.12	-1.05	0.20	0.68	0.60
40—49	0.23	-0.79	0.20	0.68	0.79
1941—50	0.38	-0.36	0.46	0.68	0.88

Utsira:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.64	0.73	0.25	1.05	0.73
1931—40	0.48	0.39	0.19	0.86	0.64
32—41	0.48	0.17	0.17	1.00	0.65
33—42	0.33	-0.25	0.03	0.90	0.73
34—43	0.32	-0.21	0.11	0.68	0.77
35—44	0.27	-0.25	0.11	0.66	0.71
1936—45	0.35	-0.40	0.27	0.76	0.80
37—46	0.35	-0.32	0.29	0.69	0.85
38—47	0.34	-0.56	0.28	0.79	0.83
39—48	0.33	-0.57	0.37	0.81	0.68
40—49	0.37	-0.38	0.35	0.64	0.84
1941—50	0.50	-0.09	0.43	0.78	0.95

Table 2.

Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 10 year smoothing.

Ullensvang:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	0.57	0.79	0.48	0.75	0.41
1931—40	0.35	0.27	0.33	0.62	0.28
32—41	0.31	-0.10	0.27	0.79	0.22
33—41	0.14	-0.65	0.17	0.68	0.36
34—43	0.06	-0.69	0.13	0.41	0.36
35—44	-0.08	-0.84	0.02	0.31	0.26
1936—45	-0.05	-0.99	0.15	0.40	0.26
37—46	-0.12	-1.04	0.14	0.22	0.29
38—47	-0.18	-1.36	0.01	0.32	0.24
39—48	-0.28	-1.38	0.06	0.48	0.08
40—49	-0.17	-1.21	0.00	0.54	0.29
1941—50	-0.06	-0.83	0.11	0.54	0.38

Lærdal:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	0.70	1.26	0.36	0.72	0.66
1931—40	0.45	0.56	0.18	0.62	0.58
32—41	0.37	0.07	0.09	0.85	0.48
33—42	0.20	-0.57	0.01	0.77	0.64
34—43	0.17	-0.62	0.08	0.58	0.67
35—44	0.00	-0.85	-0.14	0.45	0.62
1936—45	0.01	-1.06	0.04	0.53	0.52
37—46	-0.08	-1.17	-0.02	0.41	0.55
38—47	-0.21	-1.57	-0.22	0.42	0.49
39—48	-0.27	-1.63	-0.16	0.47	0.24
40—49	-0.19	-1.50	-0.22	0.40	0.49
1941—50	-0.09	-1.00	-0.14	0.34	0.59

Bergen:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	0.86	1.10	0.60	1.13	0.89
1931—40	0.67	0.69	0.54	0.92	0.81
32—41	0.68	0.40	0.53	1.11	0.84
33—42	0.56	-0.01	0.45	1.02	0.96
34—43	0.53	0.03	0.43	0.82	1.01
35—44	0.43	-0.07	0.39	0.81	0.93
1936—45	0.50	-0.25	0.55	0.93	0.97
37—46	0.48	-0.23	0.51	0.85	1.02
38—47	0.42	-0.52	0.43	0.95	0.95
39—48	0.42	-0.57	0.55	1.01	0.77
40—49	0.45	-0.43	0.48	0.91	0.95
1941—50	0.58	-0.14	0.53	1.07	1.03

Ona:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	0.47	0.57	-0.06	0.86	0.61
1931—40	0.29	0.22	-0.14	0.60	0.56
32—41	0.30	0.03	-0.17	0.76	0.64
33—42	0.20	-0.32	-0.25	0.68	0.76
34—43	0.17	-0.35	-0.17	0.49	0.75
35—44	0.06	-0.41	-0.28	0.41	0.64
1936—45	0.10	-0.55	-0.11	0.47	0.65
37—46	0.14	-0.52	-0.10	0.47	0.76
38—47	0.09	-0.62	-0.19	0.50	0.69
39—48	0.03	-0.65	-0.07	0.39	0.49
40—49	0.03	-0.59	-0.10	0.22	0.62
1941—50	0.18	-0.33	-0.05	0.45	0.76

Hellisøy:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	0.77	0.82	0.44	1.10	0.91
1931—40	0.63	0.51	0.43	0.88	0.84
32—41	0.67	0.30	0.43	1.09	0.91
33—42	0.55	-0.04	0.31	1.01	1.04
34—43	0.50	-0.01	0.34	0.76	1.04
35—44	0.40	-0.10	0.30	0.68	0.94
1936—45	0.43	-0.29	0.44	0.74	0.96
37—46	0.41	-0.24	0.40	0.66	0.98
38—47	0.36	-0.46	0.35	0.70	0.90
39—48	0.32	-0.48	0.43	0.71	0.70
40—49	0.31	-0.34	0.37	0.51	0.82
1941—50	0.42	-0.08	0.40	0.65	0.92

Trondheim:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	1.07	1.70	0.31	1.29	1.22
1931—40	0.78	1.03	0.12	0.96	1.19
32—41	0.76	0.76	0.07	1.17	1.16
33—42	0.60	0.12	-0.03	1.13	1.31
34—43	0.61	0.05	0.08	0.95	1.40
35—44					
1936—45					
37—46					
38—47					
39—48					
40—49					
1941—50					

Table 2.

Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 10 years smoothing.

Brønnøysund:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.86	0.98	0.37	1.24	0.96
1931—40	0.64	0.49	0.16	0.92	0.99
32—41	0.61	0.32	0.05	1.10	1.01
33—42	0.47	-0.16	-0.10	1.06	1.14
34—43	0.50	-0.25	0.04	0.90	1.19
35—44	0.38	-0.23	-0.14	0.72	1.10
1936—45	0.41	-0.27	0.06	0.80	1.05
37—46	0.46	-0.27	-0.02	0.82	1.20
38—47	0.30	-0.38	-0.30	0.67	1.05
39—48	0.22	-0.50	-0.14	0.51	0.83
40—49	0.23	-0.36	-0.13	0.26	0.98
1941—50	0.39	-0.13	-0.02	0.54	1.10

Tromsø:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	1.06	1.32	0.54	1.49	1.15
1931—40	0.90	0.94	0.41	1.16	1.25
32—41	0.78	0.71	0.24	1.22	1.23
33—42	0.70	0.37	0.13	1.27	1.29
34—43	0.71	0.15	0.28	1.17	1.29
35—44	0.63	0.21	0.16	0.94	1.25
1936—45	0.62	0.21	0.23	1.01	1.18
37—46	0.65	0.26	0.21	1.02	1.20
38—47	0.48	0.20	-0.07	0.85	1.03
39—48	0.34	0.00	0.04	0.67	0.77
40—49	0.37	0.10	0.14	0.45	0.84
1941—50	0.50	0.20	0.26	0.70	0.95

Bodø:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	1.17	1.40	0.58	1.28	1.33
1931—40	0.95	0.92	0.34	0.99	1.37
32—41	0.89	0.69	0.22	1.15	1.36
33—42	0.77	0.26	0.07	1.16	1.45
34—43	0.80	0.12	0.21	1.07	1.48
35—44	0.66	0.12	0.01	0.84	1.39
1936—45	0.70	0.12	0.19	1.01	1.31
37—46	0.73	0.14	0.11	1.01	1.37
38—47	0.59	0.03	-0.23	0.87	1.18
39—48	0.44	-0.17	-0.13	0.68	0.88
40—49	0.40	-0.09	-0.13	0.42	0.89
1941—50	0.52	0.07	-0.04	0.62	1.05

Alta:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	1.10	1.96	0.26	1.11	1.29
1931—40	0.95	1.39	0.18	0.93	1.35
32—41	0.87	1.24	0.02	1.14	1.27
33—42	0.73	0.70	-0.09	1.25	1.24
34—43	0.75	0.41	0.04	1.21	1.24
35—44					
1936—45					
37—46					
38—47					
39—48					
40—49					
1941—50					

Andenes:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	1.08	1.48	0.55	1.12	1.26
1931—40	0.91	1.17	0.36	0.84	1.32
32—41	0.84	0.99	0.17	0.93	1.33
33—42	0.74	0.69	0.05	0.94	1.40
34—43	0.73	0.51	0.18	0.85	1.38
35—44	0.63	0.54	0.05	0.65	1.29
1936—45	0.62	0.51	0.13	0.69	1.26
37—46	0.68	0.58	0.12	0.74	1.32
38—47	0.55	0.57	-0.14	0.62	1.20
39—48	0.46	0.42	0.03	0.44	0.96
40—49	0.47	0.51	0.08	0.26	1.02
1941—50	0.62	0.61	0.25	0.45	1.18

Vardo:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	0.89	1.32	0.45	0.85	1.08
1931—40	0.80	0.95	0.34	0.76	1.13
32—41	0.66	0.88	0.15	0.76	1.02
33—42	0.55	0.49	0.03	0.77	1.00
34—43	0.61	0.35	0.20	0.77	1.01
35—44					
1936—45					
37—46					
38—47					
39—48					
40—49					
1941—50					

Table 2
Air Temperature.

Departures in degrees Celsius from the mean values for the period 1901—30, after 10 years smoothing.

Sorvaranger:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	1.26	2.21	0.65	1.11	1.58
1931—40	1.04	1.41	0.45	0.99	1.54
32—41	0.77	1.17	0.06	1.00	1.32
33—42	0.43	0.30	-0.18	1.04	1.17
34—43	0.46	-0.15	-0.01	1.04	1.08
35—44					
1936—45					
37—46					
38—47					
39—48					
40—49					
1941—50					

Karasjok:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	1.41	2.91	0.21	1.15	1.83
1931—40	1.28	1.90	0.28	1.07	1.84
32—41	1.16	1.66	0.13	1.28	1.72
33—42	0.92	0.81	0.06	1.40	1.73
34—43	0.98	0.29	0.38	1.40	1.67
35—44	0.82	0.27	0.22	1.23	1.55
1936—45	0.71	0.18	0.28	1.39	1.14
37—46	0.73	0.14	0.23	1.38	1.03
38—47	0.51	-0.06	-0.17	1.14	1.06
39—48	0.30	-0.53	-0.03	0.87	0.84
40—49	0.47	-0.32	0.06	0.63	1.13
1941—50	0.59	0.10	0.21	0.75	1.16

Table 2.
Amount of Precipitation.

Departures in per cent of the mean values of the annual precipitation of the period 1901—30 from the mean values for the period 1901—30, after 10 years smoothing.

Tufsingdal:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	3.36	1.17	-0.93	2.59	0.53
1931—40	2.91	1.24	-1.98	2.90	0.75
32—41	2.03	1.00	-3.22	3.33	0.92
33—42	2.80	0.41	-3.76	4.30	1.85
34—43	5.05	0.94	-2.59	3.27	3.43
35—44	5.61	0.68	-2.60	3.96	3.57
1936—45	3.90	-0.39	-1.28	4.38	1.19
37—46	5.73	-0.17	-1.28	4.18	3.00
38—47	3.31	-0.27	-1.98	2.70	2.86
39—48	0.63	-0.38	-2.35	1.55	1.81
40—49	3.12	-0.17	-0.86	1.76	2.39
1941—50	7.29	0.98	0.34	4.27	1.70

Orbekkedalen:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	9.90	5.31	-2.40	0.77	6.22
1931—40	6.12	3.63	-3.55	0.42	5.62
32—41	1.87	1.44	-4.65	0.69	4.39
33—42	1.94	1.07	-5.65	1.42	5.10
34—43	3.29	1.41	-4.76	1.44	5.20
35—44	2.96	0.80	-6.58	2.20	6.54
1936—45	-1.99	-0.01	-6.51	1.81	2.72
37—46	-2.26	-0.74	-6.01	0.49	4.00
38—47	-7.72	-0.97	-7.60	-1.74	2.59
39—48	-8.65	-1.57	-6.89	-1.77	1.58
40—49	-10.01	-3.32	-6.39	-2.33	2.02
1941—50	-5.40	-2.02	-5.66	0.06	2.22

Dombås:

Period	Year	Winter	Spring	Summer	Autumn
1922—31	3.89	-4.13	-2.13	4.95	5.20
23—32	2.18	-2.84	-2.46	2.83	4.65
24—33	0.05	-4.05	-2.63	3.20	3.53
25—34	1.90	-1.84	-1.78	1.08	4.44
1926—35	1.57	-1.11	-2.21	1.74	3.15
27—36	-1.42	-0.64	-3.72	1.03	1.91
28—37	-3.60	-1.21	-1.64	-0.62	-0.13
29—38	3.25	-1.04	0.23	1.77	2.29
30—39	3.79	-0.33	0.54	3.07	0.51
1931—40	3.70	-0.16	0.30	3.81	-0.25
32—41	3.37	-0.24	-0.65	4.81	-0.55
33—42	4.30	-2.22	-0.42	4.84	2.10
34—43	7.20	-1.94	1.34	5.10	2.70
35—44	5.97	-3.06	1.36	5.29	2.38
1936—45	4.81	-3.70	2.81	4.53	1.17
37—46	7.84	-2.33	2.59	4.10	3.48
38—47	4.36	-4.21	0.37	4.52	3.68
39—48	0.51	-4.34	-0.25	2.50	2.60
40—49	1.86	-2.90	0.94	0.67	3.15
1941—50	1.62	-3.12	0.71	0.68	3.35

Table 2.

Amount of Precipitation.

Departures in per cent of the mean values of the annual precipitation of the period 1901—30 from the mean values for the period 1901—30, after 10 years smoothing.

Biri:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	7.15	5.26	-2.30	0.37	3.82
1931—40	2.26	3.01	-3.74	0.41	2.58
32—41	0.97	0.95	-5.12	2.75	2.39
33—42	1.88	0.68	-5.84	4.54	2.50
34—43	3.74	0.60	-4.82	4.84	3.12
35—44	3.97	0.33	-6.48	6.30	3.82
1936—45	-1.49	-0.60	-5.98	5.06	0.03
37—46	-0.21	-1.77	-6.31	5.48	2.39
38—47	-3.95	-2.03	-7.99	4.47	1.60
39—48	-4.83	-2.86	-7.32	5.24	0.11
40—49	-8.67	-4.76	-6.37	0.77	1.69
1941—50	-2.20	-3.08	-4.64	3.76	1.76

Høydalsmo:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	11.19	5.56	-3.30	3.18	5.75
1931—40	7.04	3.02	-4.55	2.17	6.40
32—41	5.70	1.25	-5.32	3.94	5.83
33—42	6.74	1.20	-5.40	3.86	7.08
34—43	7.94	1.25	-4.73	3.54	7.88
35—44	5.45	1.11	-6.24	2.47	8.11
1936—45	1.02	0.11	-5.35	3.07	3.19
37—46	2.02	-1.04	-5.37	4.72	3.71
38—47	-1.61	-1.98	-7.22	3.84	3.75
39—48	-3.55	-2.03	-6.33	2.76	2.05
40—49	-5.52	-3.40	-5.38	-0.79	4.05
1941—50	-0.03	-1.66	-4.77	2.74	3.66

Ås:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	2.47	5.23	-2.60	-4.60	4.44
1931—40	-0.98	2.43	-3.37	-4.71	4.67
32—41	-2.93	0.70	-4.33	-2.95	3.65
33—42	-1.65	0.64	-5.00	-1.26	3.97
34—43	-1.20	0.73	-5.16	-0.53	3.76
35—44	-0.52	0.58	-6.92	0.50	5.32
1936—45	-4.62	-0.10	-6.22	0.68	1.02
37—46	-2.59	-1.28	-6.53	2.15	3.07
38—47	-6.51	-2.65	-7.59	0.69	3.04
39—48	-4.95	-2.43	-5.83	2.51	0.79
40—49	-6.05	-4.21	-5.18	0.90	2.43
1941—50	-2.30	-2.34	-4.44	2.02	2.45

Egelands Verk:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	14.56	8.71	-2.08	2.76	5.17
1931—40	9.28	5.69	-3.12	1.30	5.41
32—41	4.94	2.48	-3.64	1.84	4.26
33—42	4.77	1.94	-4.32	2.23	4.92
34—43	6.72	1.96	-4.32	3.66	5.42
35—44	4.44	1.60	-5.99	2.23	6.60
1936—45	-1.98	0.56	-5.96	1.69	1.73
37—46	-3.41	-1.03	-6.81	2.66	1.77
38—47	-7.72	-2.02	-8.94	1.64	1.60
39—48	-6.30	-1.28	-8.07	2.52	0.53
40—49	-7.23	-3.03	-7.77	0.19	3.38
1941—50	-2.60	-0.69	-7.91	2.81	3.19

Dagali:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	-1.07	-1.19	-3.45	2.26	1.31
1931—40	-3.49	-1.94	-3.98	1.37	1.06
32—41	-4.24	-2.43	-5.24	2.58	0.85
33—42	-3.53	-2.04	-5.23	1.96	1.78
34—43	-2.27	-1.43	-5.40	2.32	2.24
35—44	-3.22	-1.66	-5.99	1.77	2.66
1936—45	-3.03	-1.83	-4.36	2.77	0.39
37—46	-2.50	-2.37	-4.45	2.95	1.37
38—47	-7.49	-2.77	-6.53	0.23	1.58
39—48	-8.13	-2.83	-6.51	0.57	0.64
40—49	-11.58	-4.20	-5.50	-3.32	1.44
1941—50	-7.88	-2.89	-5.18	-1.18	1.37

Mandal:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	5.97	4.09	-4.27	0.35	5.80
1931—40	2.77	1.73	-4.52	-0.88	6.44
32—41	0.26	-0.10	-4.53	-0.20	5.09
33—42	0.62	-0.88	-4.50	0.77	5.23
34—43	0.99	-0.29	-4.53	-0.06	5.87
35—44	0.74	-0.28	-5.76	-0.35	7.13
1936—45	-3.71	-1.54	-5.06	-0.56	3.45
37—46	-2.56	-3.07	-5.11	0.71	4.91
38—47	-5.73	-5.63	-5.96	0.25	5.61
39—48	-5.42	-5.56	-5.90	1.09	4.95
40—49	-5.67	-5.89	-5.00	-0.48	5.71
1941—50	0.14	-3.46	-4.44	2.62	5.42

Table 2.

Amount of Precipitation.

Departures in per cent of the mean values of the annual precipitation of the period 1901—30 from the mean values for the period 1901—30, after 10 years smoothing.

Skudenes:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	-1.47	-1.06	-3.82	1.34	2.07
1931—40	-3.86	-3.09	-3.86	1.10	1.99
32—41	-4.57	-4.50	-4.15	2.79	1.29
33—42	-5.19	-5.16	-3.58	2.14	1.41
34—43	0.49	-2.96	-2.46	1.90	4.01
1935—44	0.79	-2.74	-2.87	1.68	3.14

Kinsarvik:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	-6.78	-4.62	-2.67	-1.12	1.63
1931—40	-6.83	-6.64	-3.11	-0.04	2.96
32—41	-8.53	-7.22	-3.26	-0.23	2.18
33—42	-7.88	-8.96	-2.71	0.11	3.68
34—43	-0.84	-7.23	1.01	-0.82	6.20
35—44	-1.68	-6.83	1.35	-0.03	3.83
1936—45	-0.71	-6.40	2.96	0.57	2.16
37—46	3.70	-4.95	4.63	1.18	2.84
38—47	2.59	-8.15	6.17	0.81	3.76
39—48	-2.04	-10.02	3.85	-0.04	4.17
40—49	1.02	-7.41	4.43	-0.55	4.55
1941—50	4.81	-4.93	5.64	-0.44	4.54

Helgaland i Hjelmeland:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	5.40	0.43	-1.16	0.23	5.90
1931—40	4.54	-1.85	-1.61	1.04	6.96
32—41	2.06	-2.84	-1.58	1.18	5.30
33—42	2.40	-4.44	-1.06	1.60	6.30
34—43	8.73	-2.85	2.12	0.86	8.60
35—44	7.93	-3.12	2.63	0.95	7.47
1936—45	7.01	-3.15	3.64	1.95	4.57
37—46	10.71	-2.21	4.78	3.16	4.98
38—47	8.87	-5.82	6.24	2.62	5.83
39—48	2.11	-7.38	3.18	1.46	4.85
40—49	3.80	-5.10	3.81	0.83	4.26
1941—50	7.80	-1.88	5.11	0.48	4.09

Bergen:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39					
1931—40					
32—41	-1.92	-2.68	-3.57	2.87	1.46
33—42	-2.40	-4.15	-3.62	3.48	1.89
34—43	1.22	-3.80	-1.51	2.43	4.10
35—44	-2.94	-5.24	-1.44	2.12	1.62
1936—45	-5.02	-5.74	-0.31	1.34	-0.31
37—46	-1.10	-4.33	1.25	1.55	0.43
38—47	-2.11	-6.88	2.38	0.76	1.63
39—48	-5.35	-7.83	0.58	-0.49	2.39
40—49	-2.18	-6.18	1.61	-1.02	3.41
1941—50	3.54	-4.09	2.85	0.03	4.75

Jøsandal:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	-3.00	-2.64	-2.51	-1.01	3.16
1931—40	-4.68	-4.98	-3.28	-0.39	3.97
32—41	-7.09	-6.00	-3.46	-0.39	2.76
33—42	-6.74	-7.97	-2.91	0.38	3.76
34—43	-1.69	-7.83	0.60	-0.46	6.00
35—44	-1.16	-6.06	0.84	0.15	3.91
1936—45	-0.37	-5.45	2.38	0.58	2.12
37—46	3.37	-4.29	4.12	1.48	2.06
38—47	1.82	-7.99	5.82	0.94	3.05
39—48	-3.22	-9.76	3.35	0.02	3.17
40—49	-0.10	-6.68	3.73	-0.70	3.55
1941—50	4.93	-3.52	5.06	-0.08	3.47

Reimegrend:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	-10.23	-6.45	-4.18	-0.05	0.45
1931—40	-11.09	-8.16	-4.62	0.63	1.06
32—41	-13.25	-8.61	-4.97	0.41	-0.08
33—42	-12.18	-9.96	-4.39	0.56	1.61
34—43	-7.37	-8.80	-1.93	-0.68	4.04
35—44	-9.42	-9.00	-1.99	0.09	1.48
1936—45	-9.53	-8.63	-0.58	-0.07	-0.25
37—46	-3.39	-7.66	0.84	0.79	2.64
38—47	-4.02	-10.52	2.13	0.67	3.70
39—48	-6.41	-11.64	0.83	-0.28	4.68
40—49	-2.84	-8.94	1.44	-0.77	5.43
1941—50	1.59	-6.94	2.62	-0.69	6.60

Table 2.

Amount of Precipitation.

Departures in per cent of the mean values of the annual precipitation of the period 1901—30 from the mean values for the period 1901—30, after 10 years smoothing.

Gaular:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	-5.16	-1.51	-2.83	-0.18	-0.64
1931—40	-5.54	-2.77	-2.92	0.25	-0.10
32—41	-6.93	-3.33	-3.01	0.35	-0.94
33—42	-5.67	-5.29	-2.93	1.47	1.08
34—43	0.38	-3.91	0.22	0.34	3.73
35—44	-2.61	-4.45	0.51	0.27	1.06
1936—45	-2.82	-4.22	1.91	-0.13	-0.38
37—46	1.32	-2.65	3.56	0.38	0.03
38—47	-0.07	-6.07	5.03	-0.47	1.44
39—48	-3.47	-7.51	3.25	-1.67	2.46
40—49	1.13	-5.07	4.70	-1.86	3.36
1941—50	5.41	-3.60	5.93	-1.56	4.64

Sindre i Innvik:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	-3.83	-1.56	-1.69	1.32	-1.90
1931—40	-3.41	-2.88	-1.55	2.28	-1.26
32—41	-3.70	-2.92	-1.55	2.49	-1.72
33—42	-1.87	-5.03	-1.13	3.71	0.58
34—43	4.71	-3.20	2.59	2.40	2.92
35—44	3.33	-3.71	2.95	2.84	1.25
1936—45	4.18	-4.75	4.87	3.02	1.04
37—46	7.62	-2.83	6.24	3.75	0.46
38—37	6.10	-5.88	7.43	3.40	1.15
39—48	3.44	-7.47	4.91	2.46	3.54
40—49	8.41	-4.07	5.76	2.22	4.50
1941—50	9.10	-3.23	6.41	1.56	4.36

Eikefjord:

1930—39	-1.44	0.53	-2.19	2.72	-2.50
1931—40	-3.00	-0.33	-2.06	1.42	-2.03
32—41	-3.86	-1.00	-1.96	1.70	-2.60
33—42	-3.47	-3.44	-1.61	2.67	-1.09
34—43	1.66	-1.93	1.23	1.11	1.25
35—44	-1.79	-3.64	1.78	0.54	-0.47
1936—45	-1.40	-3.73	3.79	-0.33	-1.13
37—46	2.10	-2.32	5.59	-0.25	-0.92
38—47	1.03	-5.10	6.91	-0.90	0.12
39—48	-1.60	-6.01	4.93	-2.21	1.69
40—49	3.65	-3.24	6.01	-2.15	3.01
1941—50	7.27	-2.22	7.05	-1.99	4.43

Ørskog:

30—39	-1.03	-0.13	-1.54	0.88	-0.24
1931—40	1.73	0.34	-0.83	2.52	-0.30
32—41	2.11	0.91	-0.46	2.14	-0.48
33—42	-0.14	-0.80	-0.69	1.79	-0.44
34—43	4.41	0.82	1.16	1.40	1.03
35—44	3.38	-0.22	2.16	1.34	0.10
1936—45	3.32	-1.24	3.23	1.09	0.24
37—46	2.18	-1.02	3.97	0.60	-1.37
38—47	0.78	-2.97	4.38	0.87	-1.50
39—48	-1.84	-3.78	2.35	-1.37	0.96
40—49	1.40	-2.13	2.88	-0.31	0.96
1941—50	0.77	-1.72	3.24	-1.20	0.45

Jostedal:

1930—39	-6.11	-0.72	-2.52	-0.30	-2.57
1931—40	-7.63	-2.47	-2.87	0.56	-2.85
32—41	-10.25	-3.44	-3.17	0.93	-4.57
33—42	-7.50	-4.52	-2.64	1.45	-1.79
34—43	-0.64	-2.58	-0.06	1.13	0.87
35—44	-1.24	-3.62	0.00	-2.43	-0.05
1936—45	-0.38	-3.39	1.60	2.64	-1.23
37—46	4.11	-1.59	2.67	3.44	-0.41
38—47	2.62	-5.13	3.36	3.69	0.70
39—48	1.69	-6.56	1.65	3.06	3.54
40—49	6.43	-3.80	2.93	2.51	4.79
1941—50	11.31	-1.73	4.56	2.52	5.96

Eikesdal:

1930—39	-2.29	-2.58	0.86	-1.45	0.88
1931—40	0.51	-0.76	1.17	0.14	-0.04
32—41	2.55	0.37	0.90	-0.10	1.38
33—42	1.71	-1.35	1.53	-0.53	2.06
34—43	3.35	-0.10	4.44	-1.92	0.93
35—44	2.11	-1.23	5.81	-1.89	-0.58
1936—45	5.03	-1.87	7.00	-1.49	1.39
37—46	3.41	-0.90	7.19	-2.93	0.05
38—47	3.09	-3.06	7.99	-2.00	0.16
39—48	3.03	-3.54	6.32	-2.42	2.67
40—49	4.96	-1.53	6.62	-2.54	2.41
1941—50	2.23	-2.59	7.48	-3.71	1.05

Table 2.

Amount of Precipitation.

Departures in per cent of the mean values of the annual precipitation of the period 1901—30 from the mean values for the period 1901—30, after 10 years smoothing.

Sunnadal:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	0.68	-3.85	3.93	0.94	-0.34
1931—40	3.46	-1.36	4.69	2.24	-2.11
32—41	4.99	-0.45	4.35	2.11	-1.02
33—42	2.66	-4.27	4.56	1.84	0.53
34—43	3.46	-4.16	7.38	0.80	-0.56
35—44	2.49	-5.76	9.93	0.47	-2.15
1936—45	6.26	-5.69	12.69	0.57	-1.31
37—46	6.73	-2.71	12.88	-1.33	-2.11
38—47	7.84	-3.86	13.44	-1.02	-0.72
39—48	9.10	-2.92	9.49	-1.03	3.56
40—49	11.60	0.33	9.60	-1.73	3.40
1941—50	9.17	-1.38	9.64	-1.51	2.42

Kjevli i Snåsa:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	13.41	4.89	2.95	1.65	3.92
1931—40	13.07	4.92	2.31	2.34	3.50
32—41	13.30	5.97	1.89	2.22	3.22
33—42	14.05	3.10	2.66	3.39	4.90
34—43	15.72	3.47	5.76	2.36	4.13
35—44	13.44	2.25	6.49	2.77	1.93
1936—45	15.59	2.87	8.14	1.46	3.12
37—46	18.18	4.72	9.90	1.01	2.55
38—47	20.37	3.42	10.70	2.81	3.44
39—48	17.11	2.82	8.54	0.67	5.08
40—49	21.93	6.26	10.20	-0.05	5.52
1941—50	23.43	5.74	11.65	0.74	5.30

Haltdalen:

Period	Year	Winter	Spring	Summer	Autumn
1928—37	2.21	-2.98	-2.21	5.11	2.29
29—38	8.69	-1.87	1.38	5.41	3.77
30—39	7.28	-1.70	0.65	5.55	2.78
1931—40	11.07	-0.33	0.36	8.52	2.52
32—41	12.81	1.58	0.72	7.97	2.54
33—42	11.65	-1.52	0.71	8.31	4.15
34—43	11.23	-1.09	2.56	6.52	3.24
35—44	9.33	-3.02	4.10	5.63	2.62
1936—45	12.01	-2.88	7.24	3.40	4.25
37—46	12.44	-1.71	8.91	0.85	4.39
38—47	12.68	-2.81	9.49	1.28	4.72
39—48	9.47	-2.72	6.94	-0.47	5.72
40—49	11.66	-0.43	7.53	-0.70	5.26
1941—50	9.69	-1.00	8.56	-2.03	4.16

Namdalseid:

Period	Year	Winter	Spring	Summer	Autumn
1928—37					
29—38					
1930—39	1.29	-0.74	1.54	0.22	0.27
1931—40	1.39	-0.40	0.83	1.89	-0.93
32—41	3.06	1.73	0.48	1.78	-0.93
33—42	1.20	-1.92	1.04	2.27	-0.19
34—43	3.14	-1.63	3.71	1.43	-0.37
35—44	3.24	-1.96	4.85	1.90	-1.55
1936—45	4.57	-2.39	7.05	0.87	-0.96
37—46	7.41	-0.90	8.95	0.66	-1.30
38—47	9.02	-1.45	10.19	1.55	-1.27
39—48	7.60	-1.80	7.71	0.61	1.08
40—49	11.06	0.55	9.12	0.43	0.96
1941—50	11.88	0.56	9.91	-0.16	1.57

Hemne:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	3.92	2.34	1.62	-1.48	1.44
1931—40	6.42	4.00	1.97	-0.18	0.63
32—41	6.39	4.77	2.11	-0.89	0.40
33—42	5.44	1.32	3.20	-1.18	2.10
34—43	8.83	3.05	6.04	-2.09	1.83
35—44	8.22	2.52	7.81	-1.74	-0.37
1936—45	10.29	1.48	10.30	-1.99	0.50
37—46	12.59	2.89	11.90	-2.29	0.09
38—47	13.06	1.09	13.49	-1.96	0.44
39—48	11.40	0.38	10.58	-2.60	3.04
40—49	16.10	3.22	11.72	-1.95	3.11
1941—50	16.88	2.94	12.75	-2.14	3.33

Namsskogan:

Period	Year	Winter	Spring	Summer	Autumn
1930—39	-4.86	-1.11	-0.58	-0.32	-2.85
1931—40	-5.18	-1.71	-0.74	0.49	-3.22
32—41	-4.90	0.52	-1.11	0.31	-4.62
33—42	-3.80	-1.18	-0.52	0.65	-2.75
34—43	-0.60	-0.89	3.09	0.02	-2.82
35—44	-2.83	-1.66	3.39	0.42	-4.98
1936—45	1.41	-0.27	5.37	-0.42	-3.27
37—46	2.71	0.39	6.63	-0.91	-3.40
38—47	4.23	-0.81	7.38	0.26	-2.60
39—48	4.14	-1.57	6.00	-0.86	0.57
40—49	8.87	1.66	7.04	-1.06	1.23
1941—50	9.61	1.50	8.03	-1.04	1.12

Table 2

Amount of Precipitation.

Departures in per cent of the mean values of the annual precipitation of the period 1901—30 from the mean values for the period 1901—30, after 10 years smoothing.

Nord-Rana:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	-3.76	-0.91	-3.89	1.81	-0.77
1931—40	-5.06	-1.95	-4.11	2.31	-1.31
32—41	-5.48	0.24	-4.76	2.11	-3.07
33—42	-4.80	-3.02	-3.58	2.77	-0.97
34—43	-0.23	-3.50	0.26	2.26	0.75
35—44	-2.79	-4.91	0.39	3.20	-1.47
1936—45	1.25	-3.67	1.57	3.20	0.15
37—46	4.01	-1.51	3.15	2.04	0.33
38—47	2.82	-3.08	3.81	1.46	0.63
39—48	2.38	-4.49	2.86	1.36	2.65
40—49	11.02	0.33	5.64	1.36	3.69
1941—50	10.15	-0.32	6.32	0.60	3.55

Beiarn:

Period	Year	Win- ter	Spring	Sum- mer	Au- tumn
1930—39	9.72	5.81	0.08	1.17	2.66
1931—40	7.10	5.12	-1.31	1.23	2.06
32—41	9.34	7.95	-1.80	1.91	1.28
33—42	6.39	2.97	-0.98	3.14	1.26
34—43	4.74	1.62	1.02	2.49	-0.39
35—44	-0.11	-0.61	0.69	2.89	-3.08
1936—45	4.27	-0.27	1.27	3.19	0.08
37—46	7.21	2.20	2.93	1.77	0.31
38—47	7.36	1.45	3.28	1.93	0.70
39—48	8.80	0.39	2.79	1.64	3.98
40—49	14.31	4.05	3.69	1.55	5.02
1941—50	12.03	2.38	4.70	0.87	4.08

Table 3.

Atmospheric Pressure.

The Buys Ballot excess series for the departures in millibars from the mean values for the period 1901—30.

Period	<i>Røros</i>					<i>Okseøy</i>					<i>Lærdal</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	6.0	7.6	11.7	8.1	-3.6	4.8	5.5	11.1	10.2	-2.8	8.9	9.6	15.2	9.2	-2.4
40	7.6	14.5	13.5	8.5	-7.1	6.4	12.7	12.6	11.0	-6.6	10.9	18.4	16.7	10.0	-6.1
1941	10.6	17.5	16.6	9.1	0.1	9.1	15.5	15.3	10.7	0.4	14.4	23.0	20.5	10.1	1.7
42	12.4	23.4	19.9	9.7	-2.7	11.8	22.1	19.3	12.2	-0.5	16.9	30.3	24.5	11.2	-0.3
43	11.9	20.4	18.3	10.1	-2.2	12.6	20.2	21.4	12.1	0.2	17.0	26.9	24.5	11.5	0.0
44	11.9	20.8	18.4	11.1	-2.7	12.2	22.5	22.4	12.5	2.0	16.7	28.8	23.9	11.7	-2.3
45	13.4	21.7	18.9	11.6	1.9	13.5	22.6	23.8	11.9	6.5	18.0	29.0	24.8	11.4	2.5
1946	15.4	22.5	21.8	11.1	3.9	15.1	22.5	27.6	11.5	7.4	19.4	29.1	28.5	9.8	3.5
47	18.7	33.8	20.9	16.0	4.8	17.8	31.8	28.2	15.1	8.6	17.3	40.4	22.5	13.6	3.7
48	19.6	34.9	23.9	15.9	2.6	18.3	30.1	31.3	13.7	8.4	17.7	47.8	25.3	11.8	2.0
49	20.1	35.0	23.9	19.2	6.0	18.8	32.7	32.3	16.4	9.6	17.7	48.6	25.7	14.6	3.4
50	19.4	33.7	22.2	20.4	2.4	16.9	29.6	30.4	16.6	4.9	16.0	46.2	23.7	14.8	-1.7

Period	<i>Dombås</i>					<i>Skudenes</i>					<i>Brønnøysund</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	9.3	12.0	12.0	8.9	-1.9	7.1	7.5	13.5	7.9	-3.4	5.6	8.2	13.1	5.7	-4.2
40	10.8	19.2	13.2	9.1	-5.3	8.5	15.2	14.5	8.7	-7.7	8.0	17.7	15.4	5.8	-7.2
1941	14.0	22.6	16.1	9.5	2.0	11.0	17.8	17.5	7.9	-0.9	12.0	22.7	19.5	6.7	0.7
42	15.9	29.6	19.3	10.0	-0.5	12.9	24.4	20.4	8.4	-2.1	14.4	31.3	23.7	7.2	-2.7
43	15.5	26.6	18.1	10.2	-0.2	13.3	21.3	21.8	8.1	-2.0	13.3	28.0	19.8	8.1	-2.0
44	15.1	27.6	18.4	10.6	-1.8	12.9	24.6	23.9	7.5	-5.5	13.3	27.1	20.3	9.3	2.2
45	16.4	27.9	18.8	10.7	2.9	14.1	24.6	25.6	6.8	-0.9	14.9	28.5	20.4	9.8	-2.5
1946	18.1	28.4	21.8	9.5	4.6	15.2	23.9	29.8	5.0	-0.4	16.7	33.1	22.8	8.7	4.4
47	21.1	39.4	20.5	13.9	5.0	17.9	32.6	28.7	8.6	0.8	20.4	47.2	21.9	13.5	4.8
48	21.6	40.1	23.2	12.9	2.9	18.4	31.2	32.1	7.0	0.6	20.4	49.2	23.1	13.5	1.1
49	21.9	40.6	23.1	15.8	5.6	19.3	34.2	33.4	10.5	1.5	20.1	46.9	21.9	16.9	4.2
50	20.9	38.9	21.5	16.6	1.6	17.7	43.7	32.4	10.3	-3.3					

Period	<i>Oslo</i>					<i>Ullensvang</i>					<i>Røst</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	5.3	6.9	14.3	11.1	2.1	7.4	5.9	12.7	6.0	-6.0	12.2	14.1	23.7	7.6	-0.9
40	7.2	14.9	16.3	11.5	-1.4	8.9	14.1	13.8	6.4	-10.2	15.3	24.4	26.7	7.7	-2.6
1941	10.5	18.6	19.3	12.0	6.4	11.8	17.6	17.0	5.8	-3.1	20.2	30.0	31.8	9.5	6.1
42	13.3	25.5	25.1	13.6	4.7	14.0	24.5	20.5	6.4	-4.8	22.6	39.4	36.1	9.8	2.3
43	13.7	22.9	25.3	14.2	5.8	14.2	21.0	21.3	6.1	-4.7	21.8	37.1	32.1	11.0	3.6
44	13.3	23.5	25.4	15.2	4.1	16.1	25.0	25.1	6.6	-5.3	22.6	35.8	33.4	13.0	4.5
45	14.0	23.8	25.4	14.9	8.7	19.7	26.3	28.5	8.4	1.9	24.8	38.0	34.0	14.2	9.6
1946	16.9	23.9	28.6	14.8	10.4	23.5	28.6	34.7	9.1	5.1	27.0	40.1	36.2	13.9	11.8
47	20.1	35.4	27.8	19.1	11.6	27.5	41.2	36.0	12.7	5.9	31.0	55.2	34.2	18.9	12.4
48	21.0	35.5	30.6	18.4	10.7	28.0	40.9	39.2	11.0	4.9	31.2	58.8	34.8	19.6	8.6
49	21.6	36.6	31.0	21.1	13.7	28.5	42.5	40.3	14.0	6.2	30.6	55.1	32.8	22.7	11.8
50	20.7	34.6	34.0	22.4	9.9	26.8	39.6	38.5	14.0	1.3	30.6	55.5	30.2	24.4	14.2

Table 3.

Atmospheric Pressure.

The Buys Ballot excess series for the departures in millibars from the mean values for the period 1901—30.

Period	<i>Ferder</i>					<i>Bergen</i>					<i>Tromsø</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	5.5	3.4	10.3	11.9	-3.5	4.6	8.5	11.9	6.2	-4.8	4.0	2.9	12.6	1.1	-6.1
40	7.2	10.7	12.0	12.5	-7.1	6.4	16.8	13.1	7.3	-8.6	5.6	10.8	14.1	-0.4	-8.3
1941	10.1	14.1	14.8	12.7	0.4	9.5	20.4	16.6	7.1	-1.2	8.8	14.0	17.0	0.6	-1.8
42	12.7	20.8	18.8	14.2	-1.4	11.9	27.5	20.4	8.2	-2.3	10.1	21.6	19.4	-0.3	-5.2
43	12.9	18.1	19.4	14.2	-0.6	12.2	24.4	21.3	8.0	-2.2	7.8	18.3	12.8	-0.5	-4.3
44	12.3	18.8	19.6	15.2	-2.9	12.2	27.9	23.4	8.2	-4.8	7.9	14.4	12.9	0.8	-3.4
45	13.4	19.1	19.9	14.9	1.6	13.9	28.4	25.3	8.0	-0.1	9.2	16.3	11.8	1.5	0.3
1946	15.3	19.3	23.3	15.0	2.9	15.6	28.5	30.0	6.6	1.2	10.9	17.8	12.9	1.3	1.8
47	18.7	30.6	22.7	19.3	4.6	19.0	38.5	29.4	10.8	2.7	14.1	32.0	11.5	4.9	1.2
48	20.0	30.1	26.1	19.1	4.6	19.8	38.6	33.2	9.5	2.3	12.7	34.3	10.4	4.5	-4.6
49	21.1	32.5	27.5	22.3	7.6	20.8	41.2	34.7	13.2	3.6	11.3	28.0	8.1	6.6	-1.9
50	20.3	30.6	26.4	28.7	3.9	19.3	38.8	33.7	13.0	-1.3	11.5	29.1	4.5	8.3	-2.9

Period	<i>Vardø:</i>					<i>Karasjøk:</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	6.8	8.7	8.5	5.0	1.7	12.0	18.8	14.6	10.2	5.8
40	7.5	14.2	9.4	2.7	0.7	13.8	26.4	16.9	9.6	5.5
1941	9.2	14.3	10.1	3.9	5.5	17.0	29.1	19.8	12.0	12.6
42	10.1	21.3	10.5	3.6	2.5	18.9	38.5	22.0	12.6	10.7
43	7.1	17.4	2.1	3.3	4.2	17.8	36.4	15.6	13.8	13.1
44	6.4	11.2	1.1	3.9	5.5	17.7	26.5	11.2	10.7	10.9
45	6.6	11.9	-0.6	3.5	6.5	18.6	27.2	9.1	11.8	13.7
1946	7.6	13.9	-1.3	4.4	5.8	20.2	29.6	9.3	12.2	15.6
47	9.0	27.1	-5.7	6.7	3.2	22.8	43.3	6.7	15.4	14.3
48	6.2	28.0	-8.3	6.1	-4.8	19.9	44.6	4.0	14.8	6.3
49	5.0	20.6	-9.7	7.2	-2.2	19.0	37.3	2.6	17.3	9.5
50	6.6	23.1	-14.6	9.3	-0.5	20.0	39.5	-1.4	19.7	10.6

Table 3.

Air Temperature.

The Buys Ballot excess series for the departures in degrees Celsius from the mean values for the period 1901—30.

Period	<i>Dombås</i>					<i>Bergen</i>					<i>Andenes</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	6.1	12.3	1.6	9.5	7.7	8.6	9.3	4.7	10.6	9.1	8.8	10.4	3.2	8.4	12.1
40	5.0	7.9	1.3	9.4	7.9	8.1	7.1	5.4	10.5	9.0	8.8	10.1	2.8	8.1	13.0
1941	4.0	3.9	0.2	10.6	7.8	7.9	4.6	4.8	11.9	9.5	8.5	9.3	1.6	8.8	13.4
42	2.9	-1.0	-0.6	10.0	9.0	7.3	2.1	4.3	11.5	10.1	8.2	8.4	0.5	8.9	13.9
43	3.9	-0.3	1.3	10.1	10.4	8.3	3.4	5.4	12.1	11.6	9.0	8.5	1.2	9.3	15.3
44	4.5	1.5	0.1	10.8	11.3	8.8	4.4	5.1	13.3	12.3	9.8	10.7	0.7	9.3	17.0
45	5.4	1.7	2.2	12.5	11.8	9.9	4.3	6.7	15.1	13.7	10.3	11.7	1.6	9.7	17.5
1946	6.0	0.8	3.5	13.1	12.8	10.7	4.6	7.5	16.0	14.8	11.6	12.0	2.0	11.5	19.3
47	6.3	-2.1	3.3	15.9	12.8	10.9	2.7	7.7	18.6	15.3	11.6	12.9	1.0	12.1	19.9
48	7.2	-3.7	5.8	16.3	13.1	11.9	2.5	9.4	19.4	15.6	12.7	13.2	3.3	11.9	20.8
49	8.7	0.4	6.8	16.5	15.8	13.1	5.0	9.5	19.7	18.6	13.5	15.5	4.1	11.0	22.2
50	8.9	0.3	8.0	17.0	16.4	13.9	5.7	10.6	21.2	19.3	15.0	16.2	5.3	12.6	24.8

Table 3.

Air Temperature.

The Buys Ballot excess series for the departures in degrees Celsius from the mean values for the period 1901—30.

Period	<i>Oslo</i>					<i>Ona</i>					<i>Tromsø</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	9.6	12.4	4.5	7.8	9.3	3.1	3.9	-0.8	7.1	5.2	8.7	9.4	3.4	11.9	10.9
40	9.0	8.9	4.3	8.2	9.5	2.5	1.6	-0.7	6.8	5.0	8.7	8.5	3.5	11.5	12.0
1941	8.1	4.7	3.5	9.3	9.8	1.8	-0.3	-1.9	7.3	5.0	8.0	7.1	2.2	12.3	12.1
42	7.2	0.4	2.3	8.7	11.0	0.9	-2.7	-3.2	6.6	5.5	7.6	5.7	0.8	12.7	12.3
43	8.7	2.4	4.9	8.8	12.9	1.4	-2.5	-2.6	6.6	6.4	8.4	5.4	1.6	13.2	13.6
44	9.7	4.0	4.7	9.2	14.0	1.4	-1.7	-3.3	6.6	6.8	9.5	7.7	1.4	13.2	15.9
45	9.0	2.1	4.5	11.1	12.6	1.8	-2.2	-2.4	7.5	7.7	9.9	8.9	2.3	14.0	15.9
1946	9.6	2.2	5.7	11.1	13.4	2.7	-2.4	-2.3	9.0	9.2	11.0	8.3	2.9	16.1	17.1
47	9.8	-0.2	5.9	14.4	13.7	2.5	-3.3	-3.0	10.5	9.4	10.9	8.9	2.1	17.2	17.1
48	10.4	-1.4	8.0	14.6	13.9	2.8	-3.8	-1.8	10.1	9.3	11.7	8.3	3.8	17.4	18.0
49	12.3	2.5	9.3	15.5	16.4	3.4	-2.0	-1.7	9.3	11.3	12.4	10.4	4.8	16.5	19.4
50	12.8	2.9	11.2	15.7	16.7	4.3	-1.7	-1.2	11.3	12.6	13.7	10.4	6.1	18.5	21.5

Period	<i>Okseøy</i>					<i>Brønnøysund</i>					<i>Alta</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	5.9	6.2	0.8	6.9	6.2	7.3	6.2	2.3	9.6	8.9	10.0	13.2	2.0	9.4	13.3
40	5.0	2.8	-0.1	7.4	5.9	6.7	3.8	1.9	9.1	9.4	9.9	11.8	1.4	9.3	14.4
1941	3.9	-1.2	-1.8	8.4	5.9	6.0	1.9	0.7	10.2	9.3	9.5	10.9	0.1	10.9	14.4
42	2.4	-5.7	-4.2	7.8	6.8	5.1	-1.3	-0.9	9.8	10.1	8.9	8.5	-1.5	11.7	14.6
43	3.4	-4.5	-2.5	8.0	7.9	6.0	-1.2	0.0	10.0	11.4	9.9	8.5	-1.1	12.3	15.6
44	4.1	-3.1	-2.5	8.8	8.4	6.6	0.9	-0.9	10.0	12.7					
45	5.1	-3.2	-0.8	10.1	9.8	7.1	1.3	0.1	10.7	13.2					
1946	5.8	-3.1	0.4	10.2	10.6	8.3	1.0	0.2	12.3	15.4					
47	5.7	-6.1	0.0	12.5	11.4	7.8	0.2	-1.1	13.2	15.7					
48	6.5	-5.0	2.0	13.1	11.8	8.7	-0.1	0.9	13.1	16.3					
49	8.2	-1.8	2.8	13.7	14.1	9.6	2.6	1.0	12.2	18.7					
50	8.8	-0.8	4.5	14.3	14.8	10.6	2.5	1.7	14.5	20.4					

Period	<i>Skudenes</i>					<i>Bodø</i>					<i>Vardø</i>				
	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn	Year	Win-ter	Spring	Sum-mer	Au-tumn
1939	4.9	6.9	2.4	9.9	5.2	10.1	9.4	3.9	9.5	13.4	8.0	9.0	3.6	7.5	10.8
40	4.3	4.3	3.0	10.2	4.7	9.9	7.8	3.6	9.3	14.3	7.9	8.0	3.0	7.5	11.5
1941	3.6	1.3	2.0	11.5	4.3	9.4	6.2	2.5	10.3	14.4	6.8	7.2	1.1	7.6	11.0
42	2.5	-2.0	0.6	11.1	4.6	9.0	3.8	1.3	10.3	15.3	6.0	4.9	-0.4	7.4	11.0
43	3.3	-1.0	2.0	11.6	5.6	10.1	4.0	2.3	10.8	16.9	7.0	5.1	0.6	8.2	11.8
44	3.5	-0.6	1.9	12.1	5.6	10.8	6.2	1.1	10.7	18.6					
45	4.2	-1.3	2.9	13.7	6.7	11.6	7.2	2.3	12.0	19.1					
1946	5.0	-1.1	3.6	15.0	7.7	12.8	6.7	2.5	13.6	20.9					
47	5.1	-3.4	3.5	17.4	8.2	13.1	6.6	1.1	15.0	21.0					
48	6.0	-3.7	5.3	18.4	8.5	13.6	6.0	2.6	14.7	21.3					
49	7.2	-1.1	5.7	18.0	11.1	14.1	8.5	2.6	13.7	23.0					
50	8.1	-0.3	7.1	19.8	11.8	15.1	8.5	3.1	15.5	24.9					